United Nations A/72/70

General Assembly

Distr.: General
6 March 2017

Original: English

Seventy-second session
Item 78 (a) of the preliminary list*
Oceans and the law of the sea

Oceans and the law of the sea

Report of the Secretary-General

Summary

The present report was prepared pursuant to paragraph 351 of General Assembly resolution 71/257 with a view to facilitating discussions on the topic of focus at the eighteenth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, on the theme "The effects of climate change on oceans". It constitutes the first part of the report of the Secretary-General on developments and issues relating to ocean affairs and the law of the sea for consideration by the Assembly at its seventy-second session. The report is also being submitted to the States parties to the United Nations Convention on the Law of the Sea, pursuant to article 319 of the Convention.

* A/72/50.

17-03665 (E) 270317

Please recycle

Contents

		Page
I.	Introduction	3
II.	Climate change and related changes in the atmosphere: key drivers affecting oceans	4
III.	Environmental, economic and social impacts of ocean warming and acidification	5
	A. Ocean warming	6
	B. Ocean acidification	11
	C. Cumulative impacts	12
IV.	Current action and further needs with regard to cooperation and coordination in addressing the effects of climate change and related changes in the atmosphere on oceans	13
	A. Legal and policy frameworks	13
	B. Science and data collection	19
	C. Ocean-based adaptation and mitigation action and climate-resilient sustainable development	21
	D. Capacity-building, partnerships and financing	25
	E. Enhancing inter-agency coordination	28
V.	Conclusions	29

I. Introduction

1. In paragraph 339 of its resolution 71/257, the General Assembly decided that the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea would focus its discussions at its eighteenth meeting on the effects of climate change on oceans.

2. To facilitate the discussions, the present report builds on the First Global Integrated Marine Assessment[1] and the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report,[2] together with other reports and scientific, technical and policy studies. In addition, the Secretary-General is grateful for contributions submitted by States and relevant organizations and bodies upon his invitation.[3] They detail action taken to address the effects of climate change and related changes on oceans, in addition to further action necessary to prevent and significantly reduce future effects. The full text of the submissions should be referred to for completeness.[4]

---

[1] United Nations, "First Global Integrated Marine Assessment: World Ocean Assessment I" (2016), available from http://www.un.org/depts/los/global_reporting/WOA_RegProcess.htm.

[2] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2013: The Physical Science Basis — Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, Cambridge University Press, 2013), and *Climate Change 2014: Impacts, Adaptation, and Vulnerability — Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, Cambridge University Press, 2014).

[3] Contributions were received from the Governments of Azerbaijan, Bangladesh, Indonesia, Monaco, Namibia, New Zealand, the Republic of Korea and the United States of America, as well as from the European Union, which included the separate contributions of Estonia, France, Italy and the United Kingdom of Great Britain and Northern Ireland. The Secretary-General also expresses appreciation for the contributions submitted by the following intergovernmental organizations: Baltic Marine Environment Protection Commission (Helsinki Commission), Commission for the Conservation of Antarctic Marine Living Resources, secretariat of the Convention on Biological Diversity, Food and Agriculture Organization of the United Nations (FAO), Intergovernmental Oceanographic Commission (IOC), International Atomic Energy Agency, International Hydrographic Organization (IHO), International Maritime Organization (IMO), International Seabed Authority, North Atlantic Salmon Conservation Organization, North-East Atlantic Fisheries Commission, North Pacific Anadromous Fish Commission, Pacific Community (SPC), United Nations Educational, Scientific and Cultural Organization (UNESCO), secretariat of the United Nations Framework Convention on Climate Change and World Meteorological Organization (WMO). The Department of Economic and Social Affairs of the Secretariat, the Office of the United Nations High Commissioner for Refugees, the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, the United Nations Conference on Trade and Development, the United Nations Environment Programme (UNEP) (including the Mediterranean Action Plan (UNEP/MAP)) and the United Nations Human Settlements Programme (UN-Habitat) also made contributions.

[4] Contributions authorized by the authors to be posted online are available from www.un.org/Depts/los/general_assembly/general_assembly_reports.htm. They are identified in the footnotes with the name of the State or international organization that submitted them.

II. Climate change and related changes in the atmosphere: key drivers affecting oceans

3. It is now well understood that oceans and coastal systems are particularly affected by two key drivers linked to climate change and related changes in the atmosphere: ocean warming and ocean acidification.

4. Human-induced warming of the atmosphere and oceans is unequivocal.[5] In fact, most of the heat excess caused by increases in atmospheric greenhouse gases is absorbed by oceans.[6] Their large mass and high heat capacity allow them to store huge amounts of energy. Oceans are estimated to have absorbed about 93 per cent of the combined extra heat stored by warmed air, sea, land and melted ice between 1971 and 2010.[7]

5. Although all ocean basins have warmed during the past decades, the increase in heat content is not uniform across basins.[8] Warming is also not uniform throughout the water column, with the strongest warming found closest to the surface. Oceans are expected to continue to warm during the twenty-first century, with the strongest warming being projected for the surface in tropical and northern hemisphere subtropical regions.[9]

6. Increasing carbon dioxide concentrations in the atmosphere cause both anthropogenic climate change and anthropogenic ocean acidification. Oceans are a major sink of carbon dioxide, having absorbed 30 per cent of anthropogenic carbon dioxide emitted to the atmosphere.[10] Such absorption has benefited humankind by significantly reducing the greenhouse gas levels in the atmosphere and abating some of the impacts of climate change. Nevertheless, oceans' uptake of carbon dioxide is

---

[5] Secretariat of the United Nations Framework Convention on Climate Change contribution.

[6] United Nations, "World Ocean Assessment I", chap. 5, sect. 2.3.

[7] Ibid. See also IPCC, *Climate Change 2013: The Physical Science Basis*, p. 260; and Philip C. Reid, "Ocean warming: setting the scene", in D. Laffoley and J. M. Baxter, eds., *Explaining Ocean Warming: Causes, Scale, Effects and Consequences* (Gland, Switzerland, International Union for Conservation of Nature, 2016), p. 17.

[8] For example, the increase in heat content in the Atlantic during the past four decades exceeds that of the Pacific and Indian oceans combined (United Nations, "World Ocean Assessment I", chap. 5, sect. 2.3). In addition, in recent decades the Baltic Sea region has warmed up more swiftly than the global average. This accelerated warming is continuing and is expected to do so throughout the twenty-first century (Helsinki Commission contribution). The shallow waters of the Mediterranean Sea have already warmed by almost 1°C since the 1980s (UNEP contribution). The Republic of Korea reported an increase in sea surface water temperature of 2.5 times higher than the global increase in mean sea surface temperature for the same period, mostly owing to features in this semi-enclosed area, long-term changes to the Siberian High and the Pacific Decadal Oscillation and the effect of the Tsushima Warm Current (Republic of Korea contribution). Model studies indicate that the Southern Ocean and the subarctic seas of the Arctic Ocean will become more stratified, which will result in fresher, warmer surface ocean waters in the polar and subpolar regions, significantly altering their chemistry and ecosystems (see United Nations, "World Ocean Assessment I", chap. 4, sect. 1; see also IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, pp. 1664-1672).

[9] IPCC, "Summary for policymakers", in *Climate Change 2013: The Physical Science Basis*; see also pp. 263 and 278.

[10] Ibid., sect. B.5.

having a significant effect on the chemistry of seawater, which is becoming more acidic, a process described as ocean acidification.[11]

7. Oceans absorb atmospheric carbon dioxide mainly through two processes: physical air-sea flux at the ocean surface[12] and active biological uptake.[13] As more anthropogenic carbon dioxide is emitted, oceans absorb greater amounts, leading to increasing ocean acidification.[14] Seawater acidity has increased by an average of 30 per cent since the beginning of the industrial era and, if the current emissions scenarios persist, a 170 per cent increase is projected by the end of the current century.[15] Consequently, the chemical capacity of oceans to take up more carbon dioxide is diminishing, compromising their efficiency as carbon sinks.[16]

III. Environmental, economic and social impacts of ocean warming and acidification

8. The aforementioned drivers have serious effects on oceans, including rising sea levels, increased acidity and reduced mixing of ocean water and nutrients owing to stratification and deoxygenation. The results of these effects include loss of life, destruction of property, erosion of coastlines, migration of fish stocks, coral bleaching and other ecosystem degradation. These impacts act as threat multipliers by combining with other anthropogenic impacts, thus exacerbating challenges relating to food security, livelihoods and the development of communities. This in turn undermines the ability of States, in particular least developed countries and small island developing States, to achieve sustainable development and in some cases threatens the viability and survival of communities and even nations, in particular in low-lying coastal countries.

---

[11] Ibid., box 3.2, p. 295; see also European Union and IOC contributions.

[12] Colder water can take up carbon dioxide more than warm water and, if this cold, denser water sinks to form intermediate, deep or bottom water, there is transport of carbon away from the surface ocean and thus from the atmosphere into the interior of oceans. This "solubility pump" helps to keep the surface waters of oceans on average lower in carbon dioxide than the deep water, a condition that promotes the flux of the gas from the atmosphere into oceans (see United Nations, "World Ocean Assessment I", chap. 5, p. 16).

[13] Phytoplankton take up carbon dioxide from the water in the process of photosynthesis, some of which sinks to the bottom in the form of particles or is mixed into the deeper waters as dissolved organic or inorganic carbon. Part of this carbon is permanently buried in the sediments and the other part enters into the slower circulation of the deep ocean. This "biological pump" serves to maintain the gradient in carbon dioxide concentration between the surface and deep waters (see United Nations, "World Ocean Assessment I", chap. 5, p. 16).

[14] IPCC, "Carbon and other biogeochemical cycles", in *Climate Change 2013: The Physical Science Basis*.

[15] Wendy Broadgate and others, "Ocean acidification: summary for policymakers — third symposium on the ocean in a high-CO_2 world" (Stockholm, International Geosphere-Biosphere Programme, IOC, Scientific Committee on Oceanic Research, 2013). Available from www.igbp.net.

[16] Currently, that capacity is only 70 per cent of what it was at the beginning of the industrial era, and it may well be reduced to only 20 per cent by the end of the twenty-first century. See *WMO Greenhouse Gas Bulletin*, No. 10 (September 2014); and Laffoley and Baxter, eds., *Explaining Ocean Warming*, p. 17)

A. Ocean warming

9. Ocean warming is expected to have a substantial impact on specific species[17] and a broader impact on ecosystems and biodiversity.[18] The clear attribution of the impacts of climate change on biological systems is often difficult owing to a lack of long-term data, a limited understanding of the combined effects of diverse chemical and physical factors and the impact of other human drivers on aquatic systems. Moreover, these impacts depend on the region and latitude. Nevertheless, temperature-related changes in biological systems in all major ocean systems have been observed or are predicted.[19]

10. These changes are wide ranging and significant. They include changes in the range, distribution and productivity of marine species, the loss or degradation of coastal habitats and the loss of related ecosystem services, with corresponding socioeconomic impacts, such as challenges to food security, livelihoods and health.[20]

11. Projected rising temperatures are likely to result in changes in the distribution of marine species and can significantly influence the reproductive cycles of fish, including the speed at which they reach sexual maturity, the timing of spawning and the size of the eggs that they lay.[21] The distribution ranges of most marine species will shift towards the poles and deeper water, resulting in the redistribution of catch potential for fish and invertebrates.[22] This will shift provisioning services to benefit the middle and moderately high latitudes (often highly developed) at the expense of low latitudes, where small-scale (subsistence) fishing is important for food security.[23]

12. The impacts of ocean warming on marine ecosystems, such as coral reefs and coastal wetlands, are also expected to affect the productivity and resilience of connected species. Coral bleaching has already significantly damaged most coral reefs around the world and is projected to become more frequent and more severe with climate change, threatening the many coral reef ecosystem services on which hundreds of millions of coastal dwellers depend for fish production and fisheries, coastal protection, ecotourism and other community uses of coral reefs.[24] In a

[17] Ocean warming may have a wide range of impacts on marine species, including plankton, shellfish, fish, seaweeds and seagrasses and corals. Marine organisms specialize in a limited range of ambient temperatures that allows for optimal performance. Changes in ocean temperatures beyond this range affect growth, body size, behaviour, immune defences, feeding and reproductive success (see Organization for Economic Cooperation and Development (OECD), *The Ocean Economy in 2030* (Paris, OECD Publishing, 2016)).

[18] FAO contribution.

[19] Anika Seggel, Cassandra De Young and Doris Soto, *Climate Change Implications for Fisheries and Aquaculture: Summary of the Findings of the Intergovernmental Panel on Climate Change Fifth Assessment Report*, FAO Fisheries and Aquaculture Circular, No. 1122 (Rome, FAO, 2016).

[20] FAO, IOC, International Seabed Authority, UNEP, UNESCO, secretariat of the United Nations Framework Convention on Climate Change and WMO contributions.

[21] FAO contribution.

[22] IPCC, "Carbon and other biogeochemical cycles", in *Climate Change 2013: The Physical Science Basis*; see also FAO and IOC contributions.

[23] See A/70/112, para. 169.

[24] IOC contribution.

business-as-usual scenario, severe bleaching will occur annually on 99 per cent of the world's coral reefs within the current century and for the majority of the reefs in the world as early as the 2040s.[25] The increased virulence of pathogens is also likely to significantly affect marine species and ecosystems, including coral reefs, where reduced reproduction and increased coral mortality will reduce habitat quality for reef-dwelling species.[26]

13. The impacts of ocean warming on individual species and ecosystems are having a cumulative effect on marine biodiversity, leading to global homogenization as vulnerable species become extinct and alien species become established across the world's oceans.[27]

14. Ocean warming is also predicted to reduce the mixing of atmospheric oxygen (deoxygenation)[28] into mid-depth and deep parts of oceans by increasing stratification,[29] decreasing vertical mixing and altering ocean circulation patterns.[30] Such warming could also release frozen methane hydrates stored in the sea floor at water depths of 200-2,000 m (estimated at 2.5 Gt) into the ocean and ultimately into the atmosphere.[31]

15. The above-mentioned effects have already begun to have significant social, cultural and economic impacts, including losses in coastal protection, fisheries, tourism and recreation and decreased carbon storage being provided by coral reefs, mangroves and coastal wetlands.[32] The most significant and immediate socioeconomic impacts of ocean warming will be felt by the people and industries most directly dependent on living marine resources, including coastal communities who depend on small-scale fisheries for protein and income, companies in the fishery value chain and marine/coastal tourism, in particular in least developed countries and small island developing States.[33] The sustainability of ocean-based economies in coastal communities will be jeopardized, endangering livelihoods and sustainable development opportunities. Fisheries and aquaculture-dependent

[25] UNEP contribution.

[26] Ibid.

[27] Laffoley and Baxter, *Explaining Ocean Warming*.

[28] Warmer water holds less oxygen, meaning that oxygen concentrations are declining even near the surface of oceans. Increasing temperatures also increase the metabolic requirements of organisms. Consequently, the need for oxygen is rising at the same time that a multitude of processes that contribute to ocean deoxygenation reduces the supply (UNESCO contribution).

[29] See A/70/12, para. 51.

[30] See ibid., para. 52.

[31] In fact, the heat and carbon dioxide accumulated in the ocean are not permanently locked away, but can be released back to the atmosphere when the ocean surface is anomalously warm, giving a positive rapid feedback to global warming (see Laffoley and Baxter, *Explaining Ocean Warming*, pp. 10 and 17).

[32] It is estimated that wetlands sequester carbon at a rate two to four times greater than mature tropical forests and store three to five times more carbon per equivalent area than tropical forests (see A/70/74, para. 70).

[33] UNEP contribution.

economies, coastal communities, fishers, fish farmers and workers along the value chain are expected to experience the effects of climate change in various ways.[34]

16. There are also signs that human health is being affected by the enhanced survival and spread of tropical diseases with increasing ocean temperatures, in particular pathogenic species of bacteria in the genus *Vibrio* (a cause of cholera) and harmful algal bloom species that cause neurological illnesses. Human disease risk is affected by changes in disease incidence for marine species that are part of our diet, allowing for the direct transmission of the pathogen to humans or for infections of wounds exposed during recreational activities.[35]

Sea level rise

17. Between 1901 and 2010, global sea level rise accelerated and the recent rise appears to have been the fastest in at least 2,800 years.[36] During the past four decades, 75 per cent of the rise can be attributed to glacier mass loss and ocean thermal expansion.[37] Nevertheless, even if the global mean temperature is stabilized, sea levels are projected to continue to rise for centuries, as the deep areas of oceans slowly warm and the large ice sheets find a new surface mass balance.[38]

18. Sea level rise leads to coastal erosion, inundations, storm-related floods, the encroachment of tidal waters into estuaries and river systems, the contamination of freshwater reserves and food crops, the loss of nesting beaches and the displacement of coastal lowlands and wetlands.[39] It has a particular adverse impact on mangroves, seagrasses and intertidal areas and on the species that rely on them, many of which are commercially valuable. It can affect endemic and habitat-forming benthic species, given that they are highly vulnerable to water level changes and coastal erosion.[40]

19. The impacts of sea level rise interact with and amplify other existing anthropogenic or natural forms of pressure that affect coastal areas, including urban development, fishing, aquaculture, tourism, damming, extraction of materials, marine biological invasions, coastal subsidence and tectonic movements.[41]

---

[34] For example, changes such as a possible shift towards less primary production of plankton and diminished cold-water seaweed harvest, in addition to changes in the distributions and productivity of fish stocks and shellfish, would affect human food production and may have serious implications for food security (see OECD, *The Ocean Economy in 2030*). Greater uncertainty for fisheries results in social and economic impacts, complicating sustainable management (see also United States, North Pacific Anadromous Fish Commission and SPC contributions). As predicted by IPCC, vulnerability would be highest in developing tropical countries involving a risk of reduced supplies, income and employment from marine fisheries (see IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability*).

[35] Laffoley and Baxter, *Explaining Ocean Warming*.

[36] Robert E. Kopp and others, "Temperature-driven global sea-level variability in the common era", *Proceedings of the National Academy of Sciences of the United States of America*, vol. 113, No. 11 (March 2016).

[37] IPCC, "Summary for policy makers", in *Climate Change 2013: The Physical Science Basis*.

[38] Ibid., "Technical summary", in *Climate Change 2013: The Physical Science Basis*. See also secretariat of the United Nations Framework Convention on Climate Change contribution.

[39] Helsinki Commission and UNEP contributions.

[40] Laffoley and Baxter, *Explaining Ocean Warming*.

[41] UNEP/MAP contribution.

20. The impact of sea level rise is particularly significant on coastal regions and communities, not only because they are physically most exposed to it but also because they have very high population densities.[42] Slow-onset hazards, such sea level rise and coastal erosion, will cause people to flee their homes. In particular, sea level rise poses a significant risk to small island developing States[43] and other low-lying States and their efforts to achieve sustainable development and, for many, represents the gravest of threats to their survival and viability, including through the loss of territory for some.[44] It is estimated that at least 11 to 15 per cent of the population of small island developing States live on land with an elevation of 5 m or lower,[45] and that sea level rise of 0.5 m could displace 1.2 million people from low-lying islands in the Caribbean Sea and the Indian and Pacific oceans — that number would almost double if the sea level were to rise by 2 m.[46] Low-lying islands provide no possibility of retreat from sea level rise, leaving their populations with no other alternative than moving elsewhere, threatening their survival and viability.

21. Sea level rise is also projected to have significant implications for infrastructure and transportation, including ports, airports, railways and access roads located in coastal areas, increasing management and repair costs.[47] In turn, this will have an adverse impact on the sustainability of trade, food, energy and tourism[48] and cause interruptions in the mobility of local communities and world trade.[49] The potential costs associated with damage to harbours and ports stemming from sea level rise could be as high as $111.6 billion by 2050 and $367.2 billion by the end of the century.[50]

---

[42] In 2005, 400 million people lived in 136 large coastal cities. Just accounting for the increase in population, property and value of these cities, it is estimated that, in the coming 50 years, damages relating to sea level rise could rise from $6 billion per year to $52 billion per year and be as high as $1 trillion or more per year if flood defences are not upgraded. A European initiative, on the projection of the economic impacts of climate change in sectors of the European Union based on bottom-up analysis, estimates that the average annual costs from sea flood damage will increase from €163 million to €903 million in the 2080s in the southern Mediterranean alone (UNEP/MAP contribution).

[43] Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States contribution.

[44] See resolution 66/288, annex.

[45] UN-Habitat contribution.

[46] Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States contribution; see also Biliana Cicin-Sain and others, "Toward a strategic action roadmap on oceans and climate: 2016 to 2021", paper prepared for the Global Ocean Forum, Washington, D.C., October 2016, p. 16; see also UN-Habitat, *Urbanization and Climate Change in Small Island Developing States* (Nairobi, 2015). Available from https://unhabitat.org/books/urbanization-and-climate-change-in-small-island-developing-states/.

[47] United Nations Conference on Trade and Development contribution.

[48] UNEP/MAP contribution. Nevertheless, the vulnerability of coastal tourism is difficult to assess because the impact of sea level rise may lead to a redistribution, rather than a disappearance, of tourist fluxes.

[49] An estimated 80 per cent of the volume of such trade is carried by sea and enters the markets through ports and coastal transport infrastructure (United Nations Conference on Trade and Development contribution); see also http://unctad.org/en/Pages/DTL/TTL/Legal/Climate-Change-and-Maritime-Transport.aspx.

[50] Kevin J. Noone, Ussif Rashid Sumaila and Robert J. Diaz, eds., *Managing Ocean Environments in a Changing Climate: Sustainability and Economic Perspectives* (Burlington, Massachusetts, Elsevier Press, 2013). Available from http://www.sciencedirect.com/science/book/9780124076686.

Melting ice in polar regions

22. Ice shelves are melting at unprecedented rates also as a result of ocean warming,[51] and the contribution of melting continental ice sheets to sea level rise is accelerating.[52] These rates are projected to further increase in the coming years,[53] possibly at paces much greater than currently estimated,[54] given that ice disappearance has a multiplier effect by reducing surface reflection that, in turn, further increases surface melting.[55] In addition, the previously underappreciated processes of how atmospheric warming causes the hydrofracturing of buttressing ice shelves and the structural collapse of ice cliffs is now understood to give Antarctica alone the potential to contribute more than 1 m of sea level rise by 2100 and more than 15 m by 2500.[56]

23. Given that the polar ice sheets of Greenland and Antarctica are the largest reservoirs of freshwater on the planet,[57] their melting will not only dramatically increase sea level rise globally, including its socioeconomic impacts, but also cause severe effects, such as changes in the salinity of oceans, and possibly alter ocean currents and their mitigating impact on the climate of many countries.[58]

24. Reduced sea ice, especially a shift towards less multi-year sea ice, will affect a wide range of species in those waters.[59] In the Arctic region, permafrost coasts have been increasingly eroded, resulting in the release of nutrients and pollutants into oceans. How the habitat of these areas and the ocean life of these regions are exactly affected is yet to be understood.[60]

25. The reduction of Arctic sea ice could open up new navigational routes in the region, possibly making trans-Arctic shipping economically viable and oil and gas extraction, mining and tourism more accessible. The potential economic and social benefits of such activities notwithstanding, they would pose a threat to the highly vulnerable Arctic ecosystem.[61]

---

[51] Ala Khazendar and others, "Rapid submarine ice melting in the grounding zones of ice shelves in West Antarctica", *Nature Communications* 7, article No. 13243 (October 2016).

[52] WMO contribution.

[53] IPCC, "Technical summary", in *Climate Change 2013: The Physical Science Basis*, p. 98.

[54] Ibid., p. 89.

[55] OECD, *The Ocean Economy in 2030*, p. 81.

[56] Robert M. DeConto and David Pollard, "Contribution of Antarctica to past and future sea-level rise", *Nature*, vol. 531, No. 7596 (March 2016). Available from http://www.nature.com/articles/nature17145.epdf.

[57] United Nations, "World Ocean Assessment I", chap. 4, p. 2.

[58] DeConto and Pollard, "Contribution of Antarctica to past and future sea-level rise".

[59] United Nations, "World Ocean Assessment I", summary. For example, owing to low reproductive rates and long lifetimes, some iconic species, including the polar bear, will be challenged to adapt to the current fast warming of the Arctic and may be extirpated from portions of their range within the coming 100 years.

[60] Joseph R. Fonseca, "Retreating Arctic coasts cause drastic changes", Marine Technology News, 4 January 2017. Available from http://www.marinetechnologynews.com/news/retreating-arctic-coasts-cause-543334.

[61] OECD, *The Ocean Economy in 2030*, p. 83.

Extreme weather events

26. Ocean warming has been linked to extreme weather events as increasing seawater temperatures provide more energy for storms that develop at sea, leading to fewer but more intense tropical cyclones globally; changes in phenomena such as El Niño also result in significant changes in weather patterns on land.[62] This is accompanied by a pronounced poleward movement of the latitude at which the maximum intensities of storms occur, affecting coastal areas that have not previously been exposed to the dangers caused by tropical cyclones.[63] Many coastal areas will experience the effects of sea level rise described in paragraphs 18-21 above.

27. Extreme weather events and their impacts on oceans severely affect coastal communities through the widespread loss of life and the extensive destruction of infrastructure, settlements and facilities that support their livelihoods and existence.[64] Exposure to climate change-related hazards will increase as coastal populations and assets in coastal areas continue to grow, especially in highly vulnerable urban communities living in informal settlements.[65] This may result in huge numbers of displaced persons, who will also be immediately exposed to shortages of food, water and fuel while the destruction of port facilities and the creation of new navigational obstacles may impede adequate emergency response.[66] It has been reported that 21.5 million people, on average, have been forcibly internally displaced by weather-related sudden onset hazards per year since 2008.[67]

28. Tropical cyclones have a direct impact on coral reefs, mangroves, seagrasses and intertidal areas through physical damage, the resuspension of sediments, pulses of nutrient enrichment and freshwater inundation, altering their extent and structural complexity and thus their benefit as fish habitats.[68]

B. Ocean acidification

29. Ocean acidification is one of the largest threats to marine organisms and ecosystems.[69] There is high confidence that it will increase for centuries if carbon dioxide emissions continue and will strongly affect marine ecosystems.[70]

---

[62] United Nations, "World Ocean Assessment I", chap. 5.

[63] Ibid.

[64] IHO contribution.

[65] UNEP contribution.

[66] IHO contribution.

[67] Alexandra Bilak and others, "Global report on internal displacement" (Geneva, Internal Displacement Monitoring Centre, 2016). Available from http://www.internal-displacement.org/assets/publications/2016/2016-global-report-internal-displacement-IDMC.pdf.

[68] The destruction of coral reefs through cyclones can also lead to increased algal blooms as a result of the upheaval and damage. Changes in the density and biomass of fish species are common after such events and may result in reductions in critical ecosystem functions, potentially leading to regime shifts to less desirable benthic assemblage types (SPC contribution).

[69] Nathalie Hilmi and others, eds., *Bridging the Gap between Ocean Acidification Impacts and Economic Valuation: Regional Impacts of Ocean Acidification on Fisheries and Aquaculture* (Gland, Switzerland, International Union for Conservation of Nature, 2015), p. 19.

[70] IPCC, *Climate Change 2013: The Physical Science Basis*, p. 16.

30. Ocean acidification affects calcifying organisms, such as corals, because their ability to build shell or skeletal material depends on the acidity of the water. As acidification intensifies, this problem will become more widespread and occur in wild, as well as in cultured, stocks.[71] Ocean acidification also affects other marine biota, including by reducing survival, development and growth rates.[72] It therefore directly affects important components of the ocean food web, such as primary producers (plankton), coral reefs, shellfish and crustaceans; marine species that are important in capture fisheries and mariculture are also affected.[73] Coral reefs, in particular, are very sensitive to ocean acidification, with 60 per cent of reefs currently threatened, a number that will rise to 90 per cent by 2030 and about 100 per cent by 2050.[74]

31. Socioeconomic impacts include impacts on food security and the livelihoods of fishing and aquaculture communities. Many such communities are especially vulnerable because they have fewer alternative livelihoods.[75] Other impacts, described in a previous report of the Secretary-General on oceans and the law of the sea to the General Assembly in connection with the meeting of the Informal Consultative Process focusing on the impacts of ocean acidification on the marine environment, also remain valid.[76]

C. Cumulative impacts

32. The joint impacts of ocean warming and ocean acidification can be significant.[77] For example, ocean acidification affects the carbon cycle and the stabilization of atmospheric carbon dioxide (see para. 6 above), hence potentially exacerbating anthropogenic climate change and its socioeconomic impacts.[78] The cumulative effects of these impacts may cause changes at a pace such that marine ecosystems and species would not have sufficient time to adapt.[79] Moreover, these impacts cumulate with other human-induced stresses, such as unsustainable coastal development, overexploitation of living marine resources, habitat alteration and pollution.[80] While ocean warming is arguably the most pervasive environmental stressor associated with global climate change, it rarely operates independently of other regional and local conditions.

33. Marine ecosystems and biodiversity that may be resilient to one form or intensity of impact can be much more severely affected by a combination of

---

[71] United Nations, "World Ocean Assessment I", summary.

[72] Ibid.

[73] See A/68/159, para. 11; and SPC contribution for ocean acidification impacts on Pacific tuna and other pelagic species.

[74] Monaco contribution.

[75] Hilmi and others, eds., *Bridging the Gap between Ocean Acidification Impacts and Economic Valuation*, p. 3.

[76] See A/68/71, paras. 33-39.

[77] IPCC, *Climate Change 2013: The Physical Science Basis*, p. 67; see also Hilmi and others, eds., *Bridging the Gap between Ocean Acidification Impacts and Economic Valuation*, p. 3; see also Monaco contribution.

[78] See A/68/71, paras. 33-39.

[79] See A/68/159, para. 10.

[80] Monaco, European Union, UNEP and UNESCO contributions.

impacts, with the total impact of several forms of pressure on the same ecosystem often being much larger than the sum of the individual impacts. It has been observed that, where biodiversity has been altered, the resilience of ecosystems to other impacts, including climate change, is often reduced.[81] Building ecological resilience will thus depend largely on addressing the cumulative impacts of human activities on the marine environment and the unique challenges faced by mutually reinforcing stressors.

IV. Current action and further needs with regard to cooperation and coordination in addressing the effects of climate change and related changes in the atmosphere on oceans

34. The interlinkages between climate change and oceans, including associated environmental and socioeconomic impacts (see sects. II and III), call for diverse and cross-sectoral responses to address the effects of climate change and related changes in the atmosphere on oceans. Cooperation and coordination and integrated approaches at all levels are therefore essential in the planning and implementation of successful action to tackle this global challenge.

35. Many organizations and bodies address aspects of climate change and its effects on oceans, mainly from a sectoral perspective. The General Assembly is the only global policymaking body that thus far has addressed the issue in an integrated and non-sector-specific manner with a view to enhancing cooperation.[82] Cognizant that awareness-raising among relevant sectors and stakeholders is key to facilitating cooperation and coordination, the Assembly has recognized the importance of raising awareness of the adverse impacts of climate change on the marine environment and marine biodiversity, including in the context of the United Nations Framework Convention on Climate Change (see also paras. 39 and 52-53 below).

36. Set out in the present section is information on current action to tackle the effects of climate change and related changes in the atmosphere on oceans, with a particular focus on identifying areas in which coordination and cooperation could be enhanced.

A. Legal and policy frameworks

37. Several international legal and policy instruments contain measures to tackle the effects of climate change on oceans, including by providing for the enhancement of marine ecosystems' resilience, supporting adaptation and mitigation action or providing frameworks to take on related challenges.

38. Under the United Nations Convention on the Law of the Sea, which contains the legal framework within which all activities in oceans and seas must be carried out, States are required to protect and preserve the marine environment, including

[81] United Nations, "World Ocean Assessment I".

[82] See resolutions 61/222, 62/215, 63/111, 64/171, 65/37 A, 66/321, 67/78, 68/70, 69/245, 70/235 and 71/257.

from pollution[83] from or through the atmosphere.[84] States are also required to conserve and manage living marine resources, as also elaborated in the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.[85] Similarly, under the Convention on Biological Diversity, States are required to conserve and sustainably use marine biodiversity, by establishing, among other things, a system of protected areas or areas where special measures need to be taken,[86] thereby contributing to enhancing ecosystem resilience.[87]

39. Set out in the United Nations Framework Convention on Climate Change is the global legal regime to stabilize greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system to, among other things, allow ecosystems to adapt naturally to climate change and to ensure that food production is not threatened.[88] Recognized in the Convention and the Paris Agreement are the role of oceans in mitigating greenhouse gas emissions[89] and the importance of ensuring the integrity of all ecosystems, including oceans, when taking action to tackle climate change.[90]

40. Also of relevance in limiting ocean-based greenhouse gas emissions is annex VI to the International Convention for the Prevention of Pollution from Ships, 1973, on the prevention of air pollution from ships and the related energy efficiency measures adopted by the International Maritime Organization (IMO). This comprehensive mandatory regime includes both technical and operational measures designed to put in place best practices for fuel efficiency, as described in paragraph 72 below. A system for collecting data on ships' fuel oil consumption will be mandatory and apply globally at the beginning of 2019 and a comprehensive strategy on the reduction of greenhouse gas emissions from ships will be developed, with an initial strategy foreseen for adoption in 2018.[91]

41. Measures to regulate marine geoengineering (see also paras. 76-78 below) in the context of the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention), and the Protocol of 1996 thereto (London Protocol) are also relevant, given the potential impact of some

[83] In article 1 of the United Nations Convention on the Law of the Sea, "pollution of the marine environment" is defined as the "introduction by man, directly or indirectly, of substances or energy into the marine environment which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities".

[84] United Nations Convention on the Law of the Sea, articles 192, 194 and 212.

[85] Ibid., articles 61 and 117.

[86] Convention on Biological Diversity, article 8.

[87] Other conventions addressing the conservation and sustainable use of specific ecosystems and/or species are also relevant in this context, such as the Convention on Wetlands of International Importance especially as Waterfowl Habitat and the Convention on the Conservation of Migratory Species of Wild Animals.

[88] United Nations Framework Convention on Climate Change, article 2. See also article 2 of the Paris Agreement.

[89] United Nations Framework Convention on Climate Change, article 4 (1) (d).

[90] Paris Agreement, fourteenth preambular paragraph.

[91] IMO contribution.

geoengineering methods aimed at mitigating the effects of climate change on the marine environment.[92] Amendments to the London Protocol to regulate carbon dioxide sequestration in subseabed geological formations were adopted in 2006.[93]

42. At the regional level, the resilience of marine ecosystems in the face of climate change is promoted through various instruments that pertain to, among other things, the development of integrated coastal zone management as a means to prevent and/or reduce the effects of climate change[94] and the establishment of marine protected areas.[95]

43. Since 2006, the General Assembly has drawn attention in its annual resolutions on oceans and the law of the sea and on sustainable fisheries to the need to address the impacts of climate change and ocean acidification on marine ecosystems, including the impacts on the sustainability of fish stocks and the habitats that support them.[96] The work of its subsidiary bodies on ocean-related issues is also of relevance in this context. For example, the First Global Integrated Marine Assessment, the outcome of the first cycle of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects, pertains to the impacts of climate change and related changes in the atmosphere, based on the work of IPCC (see para. 64 below). The impacts of climate change and ocean acidification are also of relevance to the work of the Preparatory Committee established by General Assembly resolution 69/292: Development of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.

44. In its resolutions on sustainable fisheries, the General Assembly has expressed concern over the current and projected adverse effects of climate change on food security and the sustainability of fisheries and urged the intensification of efforts to assess and address those impacts. In addition, at the resumed Review Conference on the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, in 2016, States emphasized that there was a need for close collaboration among all relevant stakeholders in conducting research on the risks and impacts of climate change on fish stocks. They also committed themselves to exploring ways to incorporate the consideration of the adverse impacts of climate change and ocean

[92] IMO, document LC 31/15, annex 5, resolution LP.3(4); and document LC 35/15, annex 4, resolution LP.4(8).

[93] IMO contribution.

[94] See, for example, the Protocol on Integrated Coastal Zone Management in the Mediterranean to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean.

[95] See, for example, the Protocol concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region; the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean; the Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region; the Commission for the Conservation of Antarctic Marine Living Resources conservation measure 91-04; and the Convention for the Protection of the Marine Environment of the North-East Atlantic recommendation 2003/3.

[96] See resolutions 71/257 and 71/123.

acidification and related uncertainties regarding fisheries into decision-making processes for the adoption of conservation and management measures, in line with the precautionary approach.[97]

45. The synergies between sustainable development, oceans, climate change and ocean acidification are also prominent in a number of other policy instruments, including the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want",[98] the 2030 Agenda for Sustainable Development[99] and the SIDS Accelerated Modalities of Action (SAMOA) Pathway (Samoa Pathway)[100] at the global level and the Mediterranean Strategy for Sustainable Development 2016-2025 at the regional level.[101] These policy documents contain recognition of the need to conserve and sustainably use oceans, seas and marine resources and of the fact that sea level rise, ocean acidification and other adverse impacts of climate change pose a significant risk to efforts to achieve sustainable development, in particular for small island developing States and least developed countries. The United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, to be held in New York from 5 to 9 June 2017, will provide an important opportunity to address ways to support the implementation of Goal 14.

46. In relation to disaster management, the Sendai Framework for Disaster Risk Reduction 2015-2030 provides a global framework to guide decision makers towards a more disaster-resilient future. In the Sendai Declaration, a call is made for the mainstreaming of disaster risk assessment, mapping and management into rural development planning and management of, among other things, coastal floodplain areas, including by preserving ecosystem functions that help to reduce risks.[102]

47. Many of the phenomena resulting from climate change, including the increasing frequency of extreme weather events and natural disasters, rising sea levels and floods, directly and indirectly threaten the full and effective enjoyment of a range of human rights, including those to life, water and sanitation, food, health, housing, self-determination, culture and development.[103]

48. Given that mitigation and adaptation measures can also have human rights impacts, all action relating to climate change must respect, protect, promote and fulfil human rights standards and should be taken following a human rights-based

[97] See A/CONF.210/2016/5, annex, sect. A.4 (b).

[98] Resolution 66/288, annex.

[99] Resolution 70/1; see also Department of Economic and Social Affairs contribution.

[100] Resolution 69/15, paras. 31 and 44; see also Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States contribution.

[101] UNEP/MAP, Mediterranean Strategy for Sustainable Development 2016-2025, objective 4.

[102] Resolution 69/283, annex I.

[103] While no reference is made in the universal human rights treaties to a specific right to a safe and healthy environment, the treaty bodies all recognize the intrinsic link between the environment and the realization of a range of human rights, i.e. the Declaration of the United Nations Conference on the Human Environment, principle 1; the Convention on the Rights of the Child, article 24 (2) (c); and the Indigenous and Tribal Peoples Convention, 1989 (No. 169), of the International Labour Organization. For additional detail, see A/HRC/10/61.

approach.[104] Human rights principles articulated in the Declaration on the Right to Development call for such climate action to be both individual and collective and for it to benefit the most vulnerable.[105]

49. In view of the impacts on coastal communities generated by the effects of climate change on the ocean (see paras. 20 and 27 above), applicable human rights instruments are also relevant. To reduce the risk of displacement of communities vulnerable to the effects of extreme weather disasters and climate change, the Office of the United Nations High Commissioner for Refugees has developed guidance for States regarding how to plan for relocation.[106] The vast majority of affected people, thus far, are displaced within their countries. States therefore have the primary duty and responsibility to protect and assist those internally displaced persons, in accordance with their human rights obligations. The Guiding Principles on Internal Displacement also provide a basis for legislation or policies on internal displacement, including in disaster contexts.[107] When displaced persons cross international borders, they are not normally considered refugees under the terms of the 1951 Convention relating to the Status of Refugees.[108] The State-led Nansen Initiative, which ran from 2012 to 2015, was established to fill that gap and resulted in the endorsement of the Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change,[109] followed by the Platform on Disaster Displacement.[110]

Challenges and opportunities in the implementation of existing agreements

50. Integrated and coherent approaches to tackle the effects of climate change and ocean acidification on the oceans can be further developed only through enhanced cooperation and coordination at all levels in the implementation of legal, policy and management frameworks for both climate change and oceans.

51. Existing instruments provide, among other things, a framework to mitigate greenhouse gas emissions, adapt to impacts and increase marine ecosystem resilience, all of which are critical in responding to the effects of climate change on oceans. The effective implementation of these instruments can therefore be mutually reinforcing. For example, the effective implementation of the United Nations Convention on the Law of the Sea and related instruments on the protection and preservation of the marine environment and the conservation and management of living marine resources contributes to enhancing the absorptive capacity of oceans as carbon sinks and to reaching mitigation targets under the Paris Agreement, while also ensuring that oceans are resilient to the impacts of climate change. Conversely, reaching the mitigation and adaptation objectives set out in the United Nations Framework Convention on Climate Change and the Paris Agreement is essential for

[104] See http://www.ohchr.org/EN/Issues/HRAndClimateChange/Pages/HRClimateChangeIndex.aspx.
[105] Resolution 41/128.
[106] See http://www.unhcr.org/protection/environment/562f798d9/planned-relocation-guidance-october-2015.html.
[107] E/CN.4/1998/53/Add.2. At the regional level, the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa provides legal protection for those forced to flee their homes as a result of natural disasters and other specified reasons.
[108] Office of the United Nations High Commissioner for Refugees contribution.
[109] See https://www.nanseninitiative.org/.
[110] See http://disasterdisplacement.org/.

the protection of food security and livelihoods, for the effectiveness of conservation and management measures with regard to living marine resources, for efforts to prevent, reduce and control pollution of the marine environment and for ensuring that oceans continue to perform their role in climate regulation.

52. It is not yet clear what role oceans will have in the implementation of the Paris Agreement. Current climate models and scenarios assume that oceans will remain a carbon sink until 2100, yet they may become a source of greenhouse gases in the future, releasing previously emitted carbon dioxide that they have stored (see paras. 6-7 above).[111] Parties to the United Nations Framework Convention on Climate Change have identified key issues relating to oceans in the context of mitigation, adaptation and the pursuit of climate-resilient sustainable development, including as part of their national adaptation and mitigation targets under their intended nationally determined contributions. They include a need to enhance observation, research and capacity-building, develop supportive institutional, legal and policy frameworks and plan actions addressing emissions reductions, livelihood diversification, conservation and risk management.[112]

53. The implementation of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts[113] will also be relevant in the context of the impact of climate change on oceans, given that it pertains to related socioeconomic effects, namely loss and damage as a result of sea level rise and ocean acidification, in addition to other incremental impacts such as salinization, land and forest degradation, loss of biodiversity, increasing temperatures and glacial retreat.[114]

54. Neither the United Nations Convention on the Law of the Sea nor customary international law addresses the impact of a total or partial loss of land territory that may result from sea level rise on maritime limits. Specified in the Convention are the maximum breadth of maritime zones and the sovereignty, sovereign rights and jurisdiction that coastal States can exercise therein. There is also an obligation thereunder for a coastal State to deposit with the Secretary-General charts or lists of geographical coordinates of its straight baselines, as well as outer limits and delimitation lines of its maritime zones. As a consequence of sea level rise, the land territory of coastal States may be dramatically diminished or, in extreme cases, disappear. Baselines that may have been fixed and deposited with the Secretary-General, and the outer limits of maritime zones or delimitation lines measured therefrom, may represent the configuration of the coastline before sea level rise. With the exception of article 7 (2), concerning unstable coastlines caused by deltas and other natural conditions, the Convention does not pertain to variations in coastal geography.

---

[111] Secretariat of the United Nations Framework Convention on Climate Change contribution.

[112] Ibid.

[113] It was established to address loss and damage associated with the impacts of climate change, including extreme events and slow-onset events, in developing countries that are particularly vulnerable to the adverse effects of climate change. See decision 3/CP.19 of the Conference of the Parties to the United Nations Framework Convention on Climate Change.

[114] Secretariat of the United Nations Framework Convention on Climate Change contribution.

B. Science and data collection

55. A scientific understanding of oceans is fundamental for the effective management of human activities that affect the marine environment and to support policymaking.[115] Although scientific data and knowledge on oceans have increased in recent decades, including through programmes such as Horizon 2020, the European Union framework programme for research and innovation,[116] gaps remain, in particular with regard to consistent coverage of data and the infrastructure to collect and disseminate data and information.[117]

56. Broadly, there are gaps in knowledge of coastal and ocean processes.[118] Gaps persist in understanding sea temperature, sea level rise, salinity distribution, carbon dioxide absorption and nutrient distribution and cycling.[119] There are gaps in knowledge regarding the use of sea level data in models to determine changes in coastal processes and changes in shorelines.[120] To fully monitor the impacts of climate change, more needs to be done at water depths below 2,000 m and on a wider range of variables.[121]

57. Finer-resolution climate modelling would more accurately reflect the effects of climate change.[122] There has been a call for the development of indicators for monitoring change and drivers of change and an increased use of novel observation tools, in addition to mobile monitoring stations.[123] It has been noted that underwater cultural heritage sites can provide strong evidence of past climate change and serve as indicator sites for changing currents, erosion and changing environmental conditions.[124]

58. The development of a specific global framework for land/sea physical interaction assessment needs has been suggested, including by improving the capacity of persons who collect and analyse existing and new data at the local, regional and basin-wide levels.[125] In addition, support is needed for continuing in-situ measurements and for

---

[115] United Nations, "World Ocean Assessment I", chap. 30, pp. 1 and 9; see also A/66/70/Add.1, paras. 275-276.

[116] One major contribution made through Horizon 2020 to climate-related ocean observations is through the AtlantOS project, for which the European Union has invested more than €20 million. Regarding the impact of climate change on fisheries and aquaculture, other projects funded under Horizon 2020 (CERES and ClimeFish) address the threats and opportunities that the aquatic primary production sector is facing and develop adaptation strategies. Climate-related marine research has also been central under the seventh framework programme for research and technological development, with several projects such as MedSeA, VECTORS and MEECE addressing issues including the effects of climate change on marine ecosystems and human activities in the Mediterranean Sea, the Atlantic Ocean, the Baltic Sea and the Black Sea. See European Union contribution.

[117] See UNEP(DEPI)/MED WG.421/Inf.19.

[118] Secretariat of the United Nations Framework Convention on Climate Change contribution.

[119] United Nations, "World Ocean Assessment I", chap. 9.

[120] Ibid., chap. 26, sect. 6.

[121] Secretariat of the United Nations Framework Convention on Climate Change contribution.

[122] Indonesia and secretariat of the United Nations Framework Convention on Climate Change contributions; see also FCCC/CP/2015/7, para. 296.

[123] Helsinki Commission contribution.

[124] UNESCO contribution.

[125] United Nations, "World Ocean Assessment I", chap. 26, sect. 6.

the re-establishment of discontinued data collection programmes, as well as for initiating new studies, given that forecasting ocean processes is a required capability for addressing climate change and sea level rise.[126] There is an observed shortage of the data and local expertise required to assess risks relating to sea level rise, in particular for small island developing States. Traditional knowledge could be an additional resource in support of adaptation.[127]

59. Understanding and forecasting the impacts of climate change on oceans, as well as detection of changes and validation models, will require collaborative efforts to gather and analyse observational data over a lengthy period.[128] To this end, collaborative projects and programmes are being conducted for science and data collection with regard to climate change and oceans.[129] Nevertheless, attaining and sustaining global observation coverage has been identified as the most significant challenge facing oceanic climate observation systems.[130]

60. With regard to the sharing of data, States have continued to work in collaboration with international organizations to expand the pool of data and knowledge.[131] A need to enhance the sharing of data has been recognized, and many systems are already in place: of particular note are the Ocean Biogeographic Information System[132] and the world's largest collection of publically available oceanographic information managed by the National Centers for Environmental Information.[133] The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) is also engaged in coordinated activities relating to climate change (see para. 78 below).[134]

61. Nevertheless, the systematic sharing of data by Governments, universities and other institutions is not universal and calls have been made to enhance this form of cooperation,[135] including by increasing capacity to gain access to the information currently available.[136] General gaps have been observed in techniques for combining

[126] Ibid.

[127] Ibid., chap. 4, sect. 2; see also Indonesia contribution.

[128] United Nations, "World Ocean Assessment I", chap. 30, p. 9; see also Helsinki Commission contribution.

[129] In particular, the Global Ocean Observing System provides observed information on oceans, and the World Climate Research Programme conducts a wide range of related scientific research activities. See IOC contribution.

[130] Secretariat of the United Nations Framework Convention on Climate Change contribution.

[131] Indonesia, Namibia, New Zealand, Republic of Korea, United States, European Union, International Atomic Energy Agency, IHO, International Seabed Authority, North Atlantic Salmon Conservation Organization, SPC and UN-Habitat contributions.

[132] This is an integration of more than 1,900 databases, which is particularly useful for tracking climate change impacts on marine biodiversity (IOC contribution).

[133] United States contribution.

[134] The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) has established relevant working groups, such as working group 41 on marine geoengineering and working group 38 on the atmospheric input of chemicals in oceans, and also works through a correspondence group on the issue of the massive arrival of pelagic sargassum. See GESAMP, *Report of the Forty-second Session of GESAMP*, reports and studies No. 92 (Paris, IOC, 2015). See also WMO contribution.

[135] See A/66/70/Add.1, paras. 363-364; UNEP(DEPI)/MED WG.421/Inf.19; Helsinki Commission contribution.

[136] See A/69/71/Add.1, para. 120.

information on the various aspects of oceans to give an overall picture.[137] More transdisciplinary research and sharing of knowledge among appropriate institutions is needed in order to better understand the impacts of climate-related geoengineering on biodiversity and ecosystem functions and services, socioeconomic, cultural and ethical issues and regulatory options.[138]

62. The importance of a robust institutional mechanism for the collection of relevant scientific data that may contribute to the specific climate-resilient sustainable development of oceans and seas has been noted.[139] A call has also been made for the establishment of a specific United Nations body to coordinate and strengthen data collection, technology application and knowledge management.[140]

63. The General Assembly has encouraged collaboration in scientific activity to better understand the effects of climate change and ocean acidification on the marine environment and marine biodiversity, as well as to develop ways and means of adaptation.[141]

64. The Regular Process will have an essential role in strengthening the science-policy interface.[142] The General Assembly[143] decided that the second cycle of the Regular Process would produce a second world ocean assessment or assessments and support other ocean-related intergovernmental processes, including through the preparation of technical abstracts specifically tailored to the requests and needs of such processes. One of the abstracts is focused on oceans and climate change, supporting the United Nations Framework Convention on Climate Change process and the eighteenth meeting of the Informal Consultative Process.[144] IPCC is preparing a special report on climate change and oceans and the cryosphere, which will become available in 2019.[145]

C. Ocean-based adaptation and mitigation action and climate-resilient sustainable development

65. While the scientific knowledge base continues to increase, such information and related assessments of associated socioeconomic impacts and vulnerabilities have only recently begun to be used for the identification of ocean-based adaptation and mitigation options and climate-resilient sustainable development action. Similarly, even though marine species are adapting to climate change through

[137] United Nations, "World Ocean Assessment I", chap. 54, sect. 2.2.

[138] Decision XIII/14 of the Conference of the Parties to the Convention on Biological Diversity, on climate-related geoengineering.

[139] Bangladesh contribution.

[140] Indonesia contribution.

[141] Resolution 71/257, paras. 185 and 191.

[142] United Nations, "World Ocean Assessment I", chap. 26, sect. 6.

[143] Resolution 71/257, para. 296.

[144] The General Assembly has also underlined the importance of ensuring that assessments, such as those included in the *Global Sustainable Development Report* and those prepared by IPCC, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services and the Regular Process, support one another and avoid unnecessary duplication (see resolution 71/257, para. 293).

[145] See IPCC decision IPCC/XLIII-6. See also secretariat of the United Nations Framework Convention on Climate Change and IOC contributions.

shifting distributions and timing of biological events (see para. 11 above), ocean-based adaptation[146] action and the evaluation of outcomes remain at an initial stage for social systems.[147] At the regional level, action has been taken to increase the resilience of ecological and socioeconomic systems to the impacts of climate change.[148] For example, the Pacific Community is supporting the implementation of integrated coastal management projects that take holistic approaches to addressing local development and resilience in a changing climate.[149] In their contributions, a few States also reported on the incorporation of climate change considerations into coastal management.[150] Going forward, holistic, coordinated and integrated approaches at all levels require enhancement through, for example, integrated coastal zone management and/or in the context of marine spatial planning.

66. Strategies to enhance the adaptation and resilience of both ecological and socioeconomic systems are necessary to tackle the current and future unavoidable effects of climate change. Given that climate change poses a severe threat to sustainable development, including through increases in coastal vulnerability,[151] development trajectories need to combine adaptation and mitigation to realize the goals of sustainable development, while maintaining climate resilience.[152] This is particularly challenging for small island developing States, owing to their vulnerabilities linked to their relative remoteness and territorial size and relatively narrow resource base.[153]

67. Regional risk management platforms could be established to foster collaborative action to coordinate the management of weather-related risks and build risk prevention and management capabilities.[154]

68. Ecosystem-based adaptation is emerging as a viable option for Governments to increase resilience to the impacts of climate change. It promotes ecosystem health, allowing local populations to benefit from the environmental services provided, such as the provision of clean water, improved habitat for fish supplies and, more notably, protection from extreme weather and sea level events. Healthy ecosystems

[146] Adaptation refers to the adjustments in ecological, social or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It also refers to changes in processes, practices and structures to moderate potential damage or to benefit from opportunities associated with climate change.

[147] Nippon Foundation, University of British Columbia, Nereus Program, working paper, 2016 (forthcoming).

[148] Azerbaijan and UNEP/MAP contributions.

[149] SPC contribution.

[150] Azerbaijan, Indonesia and Unites States contributions; the secretariat of the United Nations Framework Convention on Climate Change in its contribution noted that 54 countries had outlined action for coastal protection in their intended nationally determined contributions.

[151] F. Denton and others, "Climate-resilient pathways: adaptation, mitigation, and sustainable development", in IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability*.

[152] Climate resilience refers to the ability of social and ecological systems to anticipate, reduce, accommodate or recover from the effects of climate change in a timely and efficient manner.

[153] Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States contribution.

[154] UNEP contribution.

can also serve as carbon sinks and thus provide the added benefit of mitigating local greenhouse gases.[155] Marine protected areas are an important tool in this context.[156]

69. Enhanced activities are needed to assist stakeholders at all levels to develop tools to plan for the impacts of climate change. It will be important to raise awareness of how natural solutions can support adaptation. Local information also requires enhancement to foster adaptation planning at the community and national levels.[157] The development of alternative incomes and livelihoods needs to be considered along with the introduction of more advanced forms of technology for the fish and marine industries.[158]

70. Parties to the United Nations Framework Convention on Climate Change have addressed ocean-related action in the adaptation components of their intended nationally determined contributions, in particular in relation to fisheries management.[159] Several United Nations system entities are supporting States in the development and implementation of national adaptation plans and access to financial resources for the implementation of field projects addressing the vulnerabilities identified.[160] The Food and Agriculture Organization of the United Nations (FAO), for example, is developing guidelines on the use of spatial technology, such as satellite remote sensing for disaster assessment and emergency preparedness for aquaculture.[161] Regional fisheries management organizations are considering the use of fishery forecasts and enhanced understandings on linkages between climate variables and fish stock conditions in the development of conservation measures.[162]

71. The response of the International Hydrographic Organization to disasters is aimed at ensuring the immediate assessment of damage and its effect on the safety of navigation, informing mariners and other interested parties of relevant damage and any dangers, in particular with regard to navigational hazards, re-establishing

[155] Indonesia, UN-Habitat and UNEP contributions.

[156] The secretariat of the Convention on Biological Diversity reported that the parties to the Convention emphasized the importance of establishing marine protected areas, coastal resource management and marine spatial planning in building the resilience of marine and costal ecosystems and encouraged the use of ecosystem-based approaches to climate change adaptation, mitigation and disaster risk reduction. UNEP is providing support to countries in applying ecosystem-based adaptation and pilot activities have been implemented in several small island developing States (secretariat of the Convention on Biological Diversity contribution). UNEP is also enhancing current knowledge on future bleaching to enhance reef management and on carbon storage and sequestration and ecosystem services provided by blue forest ecosystems, namely mangroves, seagrass and salt marshes, with the aim of contributing to ocean-based adaptation and mitigation (UNEP contribution). IOC is working with States to enhance knowledge of their adaptive capacities. Entry points are integrated coastal area management, through coastal adaptation handbooks, ocean governance and marine assessments such as the Transboundary Waters Assessment Programme (IOC contribution). See also Helsinki Commission contribution.

[157] FAO contribution.

[158] For example, in storage, packaging and other aspects of the production chain (Indonesia contribution).

[159] Secretariat of the United Nations Framework Convention on Climate Change contribution.

[160] See relevant contributions.

[161] FAO contribution.

[162] North Atlantic Salmon Conservation Organization, North-East Atlantic Fisheries Commission, North Pacific Anadromous Fish Commission and SPC contributions.

the basic key maritime transportation routes and ensuring that charts of and other hydrographic information pertaining to affected areas are updated as soon as possible.[163]

72. In terms of mitigation, given that the main drivers of climate change include emissions emanating from carbon-based fuels, ocean-based mitigation action is focused on the reduction of such emissions from ships and reducing dependency on carbon-based energy by promoting marine renewable sources of energy. With the adoption of the Energy Efficiency Design Index and the Ship Energy Efficiency Management Plan in 2011, IMO has moved decisively to reduce carbon dioxide emissions by promoting the use of energy-efficient equipment and engines. It has also actively addressed air pollution from vessels (see para. 40 above), which is particularly relevant to global mitigation efforts, given that ships emit more particulate matter and black carbon per unit of fuel consumed than other combustion sources owing to the quality of the fuel used.[164]

73. The energy sector, which accounts for some two thirds of global greenhouse gas emissions,[165] has an essential role in any mitigation effort. Annual global investment in renewables-based power generation technologies already exceeds investment in other types of power plants thanks to widespread policy support and the falling costs.[166] These technologies will be an increasingly essential element in decarbonizing the energy sector.[167] Marine renewable energy[168] in particular offers the potential to meet the increasing global energy demand while reducing long-term carbon emissions.[169]

74. Many of the technologies are at a nascent or developing stage. Offshore wind energy appears to have the greatest immediate potential for energy production, grid integration and climate change mitigation.[170] Nevertheless, the potential for other sources to provide multiple mitigation effects cannot be overlooked. For example, algae grown for biofuels can also provide a sink for carbon dioxide.[171]

75. Mitigation actions also include those aimed at ensuring that oceanic systems maintain their capacity as carbon sinks. Such actions would include the implementation of ecosystem-based management, sustainable use, conservation and restoration, including enhancing carbon sequestration by managing sinks and reservoirs and carbon stocks, and reducing and minimizing conversion and greenhouse gas emissions.[172]

---

[163] IHO contribution.

[164] D. A. Lack and J. J. Corbett, "Black carbon from ships: a review of the effects of ship speed, fuel quality and exhaust gas scrubbing", in *Atmospheric Chemistry and Physics*, vol. 12, No. 9 (May 2012).

[165] OECD and International Energy Agency, "Energy and climate change", World Energy Outlook Special Report (Paris, International Energy Agency, 2015), p. 20.

[166] Ibid., p. 109.

[167] Ibid.

[168] For example, through offshore wind power, ocean wave energy, tidal power, ocean current energy, ocean thermal conversion and osmotic power and marine biomass energy.

[169] United Nations, "World Ocean Assessment I", chap. 22.

[170] Ibid.

[171] Ibid.

[172] See FCCC/SBSTA/2014/INF.1.

76. The use of geoengineering techniques to mitigate climate change and its effects, including solar radiation management, ocean fertilization and carbon dioxide removal, has been approached carefully by the international community (see para. 41 above).[173] Proposals to directly or indirectly sequester carbon dioxide into oceans include the use of ocean fertilization techniques by nutrient addition, the direct storage of biomass in the deep ocean, the addition of alkalinity for the build-up of dissolved inorganic carbon and the direct injection of carbon dioxide into the deep ocean.[174] While acknowledging that the knowledge of the implementation of these forms of technology and associated risks is insufficient, IPCC has noted with high confidence that comparative assessments suggest that the main ocean-related geoengineering approaches are extremely costly and have large environmental footprints.[175]

77. The absence of science-based, global, transparent and effective control and regulatory mechanisms for geoengineering and the need for a precautionary approach in relation to ocean fertilization have been reaffirmed by the parties to the Convention on Biological Diversity in several decisions, including a decision that no climate-related geoengineering activities that may affect biodiversity may take place until there is an adequate scientific basis on which to justify such activities and appropriate consideration has been given to associated environmental, social, economic and cultural impacts, with the exception of small-scale scientific research studies conducted in controlled settings.[176]

78. A new GESAMP working group[177] was tasked with assessing a wide range of marine geoengineering approaches for their potential environmental and socioeconomic impacts on the marine environment and their potential scientific practicality and efficacy for climate mitigation purposes. The final peer-reviewed report is intended to assist the parties to the London Convention and the London Protocol to determine which marine geoengineering activities may be listed in annex 4 to the Protocol and consequently regulated.[178]

D. Capacity-building, partnerships and financing

79. Capacity-building is an essential component of the global response to climate change. Associated with the need to support capacity-building in developing countries has been the idea that developed countries, being those historically responsible for greenhouse gas emission levels, have a duty to help to finance the costs of climate change responses in the most vulnerable countries.[179]

80. The two issues are inextricably linked, given that the building of institutional and human capacity, without adequate climate finance, would not in and of itself assist developing States, which are bearing disproportionate impacts, in

[173] IPCC, *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, p. 454.
[174] Ibid.
[175] Ibid.
[176] Secretariat of the Convention on Biological Diversity contribution.
[177] The GESAMP working group is under the lead of IMO, with support from IOC, and co-chaired by independent experts.
[178] WMO contribution.
[179] United Nations Framework Convention on Climate Change, article 4 (4).

implementing solutions to the impacts of climate change. In addition, without proper capacity, developing States find it difficult to even gain access to climate finance, or to use it effectively to implement solutions. Indeed, articles 9 and 11 of the Paris Agreement, on climate finance and capacity-building, respectively, pertain to the link between the concepts.

81. Various partnerships and organizations are focused on building the capacity of States to pursue climate-resilient development. These include the African Package for Climate-Resilient Ocean Economies,[180] the Global Strategic Action Initiative on Oceans and Climate,[181] the Ocean Acidification International Coordination Centre and Global Ocean Acidification Observing Network,[182] the FAO strategy for fisheries, aquaculture and climate change for the period 2017-2020[183] and the Global Coral Reef Partnership with regional seas programmes.

82. Capacity-building activities have also been focused on disaster risk reduction in the face of climate change. For example, FAO completed fisheries and aquaculture emergency response guidance[184] and the World Meteorological Organization launched a dedicated programme to help small, vulnerable islands to use weather, marine and climate services, which will assist them in coping with extreme weather.[185] The International Hydrographic Organization capacity-building programme includes workshops and training courses on establishing maritime spatial data infrastructure, tidal observations and tsunami inundation mapping;[186] the Intergovernmental Oceanographic Commission Small Island Developing States Action Plan and Implementation Strategy builds actions among those States relating to tsunami early warning systems[187] and International Atomic Energy Agency projects support capacity-building to use nuclear techniques to monitor and mitigate the effects of climate change on oceans.[188] The Sustainable Ocean Initiative, under the Convention on Biological Diversity, is identifying opportunities to address capacity needs to achieve the Aichi Biodiversity Targets, including the effects of climate change on marine biodiversity.[189]

83. The Pacific Community is involved with partners in capacity development and training activities, including by developing and strengthening the skills of staff at the national and subnational levels in monitoring, control, surveillance and

[180] The African Package for Climate-Resilient Ocean Economies aims to mobilize $3.5 billion in the period 2017-2020 (UNEP contribution).

[181] The Global Strategic Action Initiative on Oceans and Climate developed a road map for the period 2016-2021 that addresses six interrelated ocean and climate issue areas. See https://globaloceanforumdotcom.files.wordpress.com/2013/03/strategic-action-roadmap-on-oceans-and-climate-november-2016.pdf.

[182] The Global Ocean Acidification Observing Network supports the building of scientific capacity of developing countries. See http://goa-on.org/.

[183] FAO, the World Bank and the African Development Bank recently announced the African Package. See FAO contribution.

[184] FAO contribution.

[185] WMO contribution.

[186] IHO contribution.

[187] The Action Plan and Implementation Strategy were adopted by the IOC member States in 2016 in response to the Samoa Pathway (IOC contribution).

[188] International Atomic Energy Agency contribution.

[189] Secretariat of the Convention on Biological Diversity contribution.

enforcement in support of the sustainable management of coastal marine resources.[190]

84. States and intergovernmental organizations are also engaging in awareness-raising activities on the impacts of climate change on oceans, including through the organization of conferences[191] and the release of policy briefs and knowledge products intended for both the general public and policymakers and providing an overview of climate change implications and vulnerabilities, as well as potential adaptation and mitigation options.[192]

85. In terms of financing, donor States are providing development assistance to strengthen resilience. For example, New Zealand and the United States of America[193] are supporting Pacific small island developing States, including through financial assistance and capacity-building, to manage the impacts of climate change and ocean acidification in the region.[194]

86. On the climate finance side, the international community has established multilateral funds to serve as vehicles for the provision of financial resources to assist developing countries in the implementation of their commitments under the United Nations Framework Convention on Climate Change.[195] The Green Climate Fund Readiness and Preparatory Support Programme was established to strengthen and build enabling environments to allow developing countries to gain access to Fund resources. Beyond readiness, the Fund can consider further support for capacity-building under its current thematic windows where such activities are identified by countries as their priority areas.[196] The Special Climate Change Fund supports adaptation activities in various areas, including the protection of fragile ecosystems and the promotion of integrated coastal management.[197]

87. Other important funds include the Climate Investment Funds, which host a pilot programme for climate resilience and are administered by the World Bank and use the multilateral development banks for programme and project implementation.

---

[190] SPC contribution.

[191] The following conferences are among those that specifically addressed issues relating to the effects of climate change on oceans: the World Ocean Conference, held in Bali, Indonesia, on 14 May 2009, and the Our Ocean, One Future conferences, held in Washington, D.C., on 16 and 17 June 2014 and 15 and 16 September 2016 and in Valparaiso, Chile, in October 2015.

[192] Azerbaijan, Indonesia, Namibia, New Zealand, United States, secretariat of the Convention on Biological Diversity, FAO and UNEP contributions.

[193] The United States reported pledging some $40 million to capacity-building programmes to foster the climate-resilient sustainable development of oceans and coastal communities in the Pacific. See United States contribution.

[194] New Zealand and United States contributions.

[195] These include the two operating entities of the financial mechanism of the United Nations Framework Convention on Climate Change — the Global Environment Facility and, more recently, the Green Climate Fund — as well as three special purpose funds: the Adaptation Fund, the Special Climate Change Fund and the Least Developed Countries Fund. See UNEP(DEPI)/MED IG.22/Inf.11.

[196] See FCCC/CP/2016/7/Rev.1.

[197] See GEF, "Programming to implement the guidance for the Special Climate Change Fund adopted by the Conference of the Parties to the United Nations Framework Convention on Climate Change at its ninth session", document GEF/C.24/12. Available from http://www.thegef.org/sites/default/files/council-meeting-documents/C.24.12_5.pdf.

Another growing funding mechanism is the issuance of green bonds, which grew from $11 billion in 2013 to $36.6 billion in 2014.[198]

88. Greater emphasis should be placed on galvanizing multi-stakeholder partnerships to tackle the impacts of climate change on oceans.[199] Private partnerships, such as the Global Resilience Partnership, and the private sector are also playing an important role.[200]

89. Given that sustained funding to support ocean-related activities remains a challenge, the availability of climate finance and capacity-building mechanisms could be further explored to support coordinated, integrated and coherent mechanisms and frameworks aimed at promoting the sustainable development of oceans and seas and ocean-based adaptation and mitigation objectives.

E. Enhancing inter-agency coordination

90. Global and regional organizations have been undertaking activities to enhance cooperation and coordination in relation to the effects of climate change and acidification on oceans.[201]

91. As the inter-agency coordination mechanism on ocean and coastal issues within the United Nations system, UN-Oceans has developed an inventory of mandates and activities by its members[202] with the objective of sharing information on current and planned activities by participating organizations and identifying possible areas for collaboration and synergy. The inventory contains a list of activities by its members relating to, among other issues, climate change. Under the work programme for 2016-2017, UN-Oceans, supported by the inventory, will continue to identify possible areas for collaboration and synergy.[203] Furthermore, the members of UN-Oceans have already been engaged in joint activities highlighting the important role of oceans in regulating the climate and the impacts of climate change and ocean acidification on the marine environment.[204]

---

[198] Ibid.

[199] For example, during the climate change conference held in Marrakech, Morocco, from 7 to 18 November 2016, an "ocean day" was convened as part of the Marrakech Partnership for Global Climate Action. The day brought together representatives of Governments, civil society, the private sector, the scientific community and dedicated international organizations to discuss successful multi-stakeholder initiatives on oceans and climate change, exchange learning experiences and best practices and set priorities for future collaboration and coordination.

[200] The Global Resilience Partnership aims to help millions of vulnerable people in the Sahel, the Horn of Africa and South and South-East Asia to better adapt to shocks and chronic stresses and invest in a more resilient future. Currently, it is working on novel solutions to flooding, including in coastal and riverine communities in South-East Asia. See http://www.globalresiliencepartnership.org/aboutus/.

[201] Secretariat of the Convention on Biological Diversity, Commission for the Conservation of Antarctic Marine Living Resources, FAO, IOC, North-East Atlantic Fisheries Commission, UNEP, secretariat of the United Nations Framework Convention on Climate Change and WMO contributions.

[202] See http://www.unoceans.org/inventory/en.

[203] See http://www.unoceans.org/fileadmin/user_upload/unoceans/docs/UN-Oceans_statement_to_ICP17_biennial_Work_Programme_2016_2017.pdf.

[204] Ibid.

V. Conclusions

92. The most notable effects of climate change and related changes in the atmosphere on the oceans are ocean warming, ocean acidification and consequent impacts, such as changes in ecosystems and biodiversity loss, sea level rise, extreme weather events and the loss of polar ice. In addition to other anthropogenic impacts, such as land-based pollution, unsustainable fishing practices and coastal development, there are serious cumulative effects, which are diverse, widespread and profound, not only affecting the ecology of the oceans, but also producing significant socioeconomic consequences for all States. These include loss of life, displacement of communities, loss of territory, destruction of property, decline of and regional shifts in fish stocks, coral bleaching and other ecosystem degradation. Accordingly, food security, livelihoods and sustainable development in developing States, especially in least developed countries and small island developing States, are increasingly affected and their vulnerabilities accentuated.

93. These impacts are progressive and expected to worsen, even under low-emission scenarios. There is an urgent need for additional integrated research and assessments to better understand their nature, scale, interactions and future trends. Such information would support the planning and implementation of successful action to tackle these global challenges in regional, national and local contexts. Urgently required action includes strengthening strategies to enhance the adaptation and resilience of both ecosystems and societies in order to address the current and future unavoidable effects of climate change, as well as substantial and sustained reductions of greenhouse gas emissions, including by assessing the extent to which oceans can continue to act as carbon sinks in the future.

94. To this end, concerted efforts are needed to promote the development of integrated, cross-sectoral and coherent approaches to address the effects of climate change and acidification on oceans. This can be achieved only through enhanced cooperation and coordination at all levels and effective partnerships among all stakeholders.

95. In particular, ways to enhance coordination in the implementation of relevant and mutually reinforcing legal and policy instruments require further consideration. Principally, the effective implementation of the United Nations Convention on the Law of the Sea and related instruments will contribute to building resilience and enhancing ocean-based mitigation, including the absorptive capacity of oceans as carbon sinks, which will in turn support efforts to reach adaptation and mitigation targets under the Paris Agreement. Conversely, reaching such targets is essential for the protection of ocean-based food security and livelihoods, for the effectiveness of conservation and management measures with regard to living marine resources and efforts to protect and preserve the marine environment. Accordingly, the role of the Paris Agreement in supporting the sustainable development of the oceans would also need to be considered by the parties to the Agreement within the framework of the United Nations Framework Convention on Climate Change. Enhancing these synergies would also support efforts to attain the Sustainable Development Goals and targets, including Goal 14.

96. Similarly, coordination among ocean and climate-related management objectives can be enhanced by mainstreaming adaptation and mitigation objectives

in the development of integrated and ecosystem-based coastal management. This will promote ecosystem health and climate resilience and allow local communities to benefit from ecosystem services, such as improved habitats for living marine resources and protection from extreme weather and sea level rise, as well as conserve coastal habitats as carbon sinks. Marine spatial planning and marine protected areas are important tools in achieving these objectives.

97. Having sustained funding to support ocean-related activities remains a challenge. Opportunities to use capacity-building and funding mechanisms, including climate finance, to promote both the sustainable development of oceans and seas and ocean-based adaptation and mitigation objectives should be further explored.

United Nations A/72/71

General Assembly

Distr.: General
17 March 2017

Original: English

Seventy-second session
Item 140 of the preliminary list*
Scale of assessments for the apportionment of the expenses of the United Nations

Multi-year payment plans

Report of the Secretary-General

Summary

In its resolution 57/4 B, the General Assembly endorsed the conclusions and recommendations of the Committee on Contributions concerning multi-year payment plans, and in its resolutions 58/1 B, 59/1 B, 60/237, 61/237, 64/248, 67/238 and 70/245 it reaffirmed that endorsement. In that connection, the Committee recommended that the Secretary-General be requested to provide information on the submission of such plans to the Assembly, through the Committee on Contributions. It also recommended that the Secretary-General be requested to submit an annual report to the Assembly, through the Committee on Contributions, on the status of the payment plans of Member States as at 31 December each year. The present report is submitted in compliance with those requests and provides information on the payment plan submitted earlier by Sao Tome and Principe and on the status of implementation of that plan as at 31 December 2016.

The General Assembly may wish to take note of the present report and encourage Member States with significant arrears in contributions to consider submitting a multi-year payment plan.

* A/72/50.

17-04341 (E) 230317

Please recycle

I. Introduction

1. In its resolution 56/243 A, the General Assembly recognized that multi-year payment plans, subject to careful formulation, could be helpful in allowing Member States to demonstrate their commitment under Article 19 of the Charter of the United Nations to pay their arrears, thereby facilitating the consideration of applications for exemption by the Committee on Contributions, and requested the Secretary-General to propose guidelines for such multi-year payment plans through the Committee on Contributions.

2. After considering the report of the Secretary-General on multi-year payment plans (A/57/65), at its sixty-second session, in 2002 (see A/57/11, chap. IV.A, paras. 17-23), the Committee on Contributions agreed that Member States should be encouraged to submit such plans, which constitute a useful tool for reducing their unpaid assessed contributions and a way for them to demonstrate their commitment to meeting their financial obligations to the United Nations. The Committee recognized in that regard that due consideration should be given to the economic position of Member States, as not all of them might be in a position to submit such plans, and recommended that multi-year payment plans should remain voluntary and should not be automatically linked to other measures.

3. The Committee recommended that Member States considering a multi-year payment plan should submit such plans to the Secretary-General for the information of other Member States and should be encouraged to consult the Secretariat for advice in their preparation. In that context, it was suggested that the plans of Member States should:

(a) Provide for annual payment of current-year assessments and a part of their arrears;

(b) Where possible, generally provide for the elimination of arrears within a period of up to six years.

4. The Committee also recommended that the Secretary-General should be requested to provide information on the submission of payment plans to the General Assembly, through the Committee, and that the Secretary-General also be requested to submit an annual report to the Assembly, through the Committee, on the status of such plans as at 31 December each year.

5. The Committee further recommended that, for those Member States that were in a position to submit a payment plan, the Committee and the General Assembly should take the submission of a plan and its status of implementation into account as one factor, when considering requests for exemption under Article 19 of the Charter.

6. In paragraph 1 of its resolution 57/4 B, the General Assembly endorsed the above conclusions and recommendations contained in the report of the Committee. In its resolutions 58/1 B, 59/1 B, 60/237, 61/237, 64/248, 67/238 and 70/245, the Assembly reaffirmed paragraph 1 of resolution 57/4 B. Accordingly, the Secretary-General has submitted annual reports on multi-year payment plans to the Assembly since its fifty-eighth session, when the first one was considered.

II. Submission of multi-year payment plans

7. Payment plans or schedules were submitted by seven Member States, the following six of which have fully implemented their plans: Georgia in 2003 (its fourth), Iraq in 2005 (its first), Liberia in 2006 (its second), the Niger in 2004 (its first), the Republic of Moldova in 2001 (its third) and Tajikistan in 2000 (its first). The remaining payment plan was submitted by Sao Tome and Principe (its first) in 2002.

8. Liberia fully paid its arrears during the first half of 2012, thereby resulting in the full implementation of its plan. Tajikistan fully paid its arrears during the first half of 2009, thereby resulting in the full implementation of its plan in advance of the deadline dates set out in the seventh annual report. Georgia and the Niger fully paid their arrears during the first half of 2007, thereby resulting in the full implementation of their plans in advance of the deadline dates specified in the fifth annual report. The schedule last proposed by the Government of the Republic of Moldova, as outlined in the fourth annual report, was fully implemented in 2005. A lump-sum payment by Iraq in 2005 also resulted in the full implementation of its plan in advance of the deadline dates specified in the fourth annual report.

9. In its resolution 64/248, the General Assembly took note with appreciation of the considerable efforts undertaken by those Member States that had fully implemented their multi-year payment plans. In that resolution, and in its resolutions 67/238 and 70/245, the Assembly encouraged Member States in arrears with their assessed contributions to the United Nations to consider submitting multi-year payment plans.

10. In an announcement concerning the seventy-seventh session of the Committee on Contributions, to be included in the *Journal of the United Nations* from 1 March to 19 May 2017, the Secretariat has invited Member States intending to submit a multi-year payment plan to contact the Secretary of the Committee for further information. In addition, in the note issued pursuant to paragraph 3 of General Assembly resolution 60/237 concerning the application of Article 19 of the Charter, attention was drawn to the provisions of resolution 57/4 B. Should any other payment plans be submitted, related information will be provided in an addendum to the present report or in the report of the Committee to be submitted to the Assembly at its seventy-second session.

11. For the purposes of the present report, payments are taken to include cash payments by the Member States concerned, together with the application of any credits to their accounts arising during the period concerned.

Sao Tome and Principe

12. Under cover of his letter of 17 May 2002 addressed to the President of the General Assembly, the Chargé d'affaires a.i. of the Permanent Mission of Sao Tome and Principe to the United Nations submitted the calendar of future payments as follows:

(United States dollars)

Year	*Payment*
2002	27 237
2003	42 237
2004	59 237
2005	74 237
2006	89 237
2007	114 237
2008	134 237
2009	153 752

13. The plan submitted by Sao Tome and Principe had a duration of eight years, covering the period from 2002 to 2009 and, if fully implemented, would involve payments totalling $694,411.

III. Status of payment plans of Member States as at 31 December 2016

14. The status of implementation of the payment plan submitted by Sao Tome and Principe as at 31 December 2016 is summarized in the table below. The plans proposed by Georgia, Iraq, Liberia, the Niger, the Republic of Moldova and Tajikistan have been excluded, since those Member States have made the payments envisaged in their payment plans and no longer fall under the provisions of Article 19 of the Charter.

Status of payment plans as at 31 December 2016

(United States dollars)

Year	*Payment plan*	*Assessments as at 31 December*	*Payments/credits*	*Outstanding as at 31 December*
Sao Tome and Principe				
2001				598 375
2002	27 237	15 723	29 146	584 952
2003	42 237	17 124	929	601 147
2004	59 237	20 932	1 559	620 520
2005	74 237	24 264	202	644 582
2006	89 237	23 024	453	667 153
2007	114 237	32 524	810	698 867
2008	134 237	30 943	473	729 337
2009	153 752	35 400	682	764 055
2010		35 548	356	799 247
2011		37 034	506	835 775

Year	*Payment plan*	*Assessments as at 31 December*	*Payments/credits*	*Outstanding as at 31 December*
2012		29 713	2 193	863 295
2013		37 248	481	900 062
2014		33 468	51 997	881 533
2015		34 498	44 888	871 143
2016		35 846	50 865	856 124

15. Payments by the Government of Sao Tome and Principe have fallen below the level foreseen for the period from 2002 to 2009 in its schedule of payments. Payments and credits totalling $34,254 were applied during that period, compared with the anticipated payments totalling $694,411 for those years set out in its schedule. Payments and credits amounting to $151,286 were applied during the period from 2010 to 2016. The outstanding assessed contributions of Sao Tome and Principe as at 31 December 2016 amounted to $856,124.

16. At its seventy-sixth session, the Committee on Contributions welcomed the resumption of payments by Sao Tome and Principe in recent years and encouraged the country to formulate a new plan when possible.

IV. Conclusions and recommendations

17. **The General Assembly may wish to take note of the present report and encourage Member States with significant arrears in contributions to consider submitting a multi-year payment plan.**

United Nations A/72/72

General Assembly

Distr.: General
17 March 2017

Original: English

Seventy-second session
Items 137 and 145 of the preliminary list*

Programme planning

Report on the activities of the Office of Internal Oversight Services

Strengthening the role of evaluation and the application of evaluation findings on programme design, delivery and policy directives

Report of the Office of Internal Oversight Services

Summary

The present report provides an assessment of evaluation capacity across the Organization through an examination of evaluation functions, resources, outputs and their use. The report also identifies good practices which have contributed to more effective evaluations. In addition, the report presents both the findings derived from a sample of evaluation reports produced across the Organization in 2014-2015 and the evaluation workplan of the Office of Internal Oversight Services (OIOS) for 2018-2019.

Results were mixed compared with those of the previous biennium. In this regard:

(a) There was some strengthening of evaluation functions;

(b) The number of entities with evaluation policies and plans increased, but adoption of appropriate procedures, including the tracking of an evaluation workplan, remained limited;

(c) While the number of evaluation reports produced by entities fell, their quality remained the same, and reported outcomes increased;

* A/72/50.

17-04374 (E) 180417

Please recycle

(d) Budgeted allocations for discretionary self-evaluation far exceeded reported expenses on evaluation reports for half of all entities, suggesting inaccuracies in the reporting of evaluation budgets and the inclusion of activities other than evaluation under this banner.

Senior management support once again emerged as a determining factor for a strong evaluation function. Strategic timing, a participatory approach and the generation of usable recommendations enhanced the utility of evaluation reports.

The General Assembly, in its resolution 70/8 of 13 November 2015, endorsed, inter alia, the four recommendations of the Committee for Programme and Coordination, as contained in the report on the work of its fifty-fifth session (A/70/16, paras. 99 and 104-106), that the Assembly should request the Secretary-General to take concrete steps to develop capacity and strengthen the culture for evaluation throughout the Organization. OIOS will report on progress thereon in the next report in 2019.

OIOS makes one important recommendation:

Budgeting of evaluation resources should be better aligned with evaluation plans, and evaluation outputs should better reflect such plans and budgets.

Contents

		Page
I.	Introduction	4
II.	Methodology	4
III.	Evaluation structure, process and practice	6
	A. There has been some strengthening of the evaluation functions within entities, as 11 entities made a structural shift towards greater independence	6
	B. While the number of entities with evaluation policies and plans increased, the adoption of appropriate procedures continued to be incomplete	8
	C. While the number of evaluation reports declined in 2014-2015, focal points did report greater usage and impact than in prior years	10
	D. A difference of 90 per cent or more was observed between resources allocated to discretionary self-evaluation and the costs of producing evaluation reports for 13 entities, suggesting the limited accuracy of reported budgets and the inclusion of activities that do not result in the production of evaluation reports under the discretionary self-evaluation allocation	14
IV.	Good practices for more effective evaluations	16
V.	Quality of reports and selected results from evaluations produced during 2014-2015	17
VI.	Evaluation workplan of the Office of Internal Oversight Services	25
VII.	Follow-up on the recommended actions of the Committee for Programme and Coordination	27
VIII.	Conclusions	29
IX.	Recommendations	30
Annexes		
I.	List of entities included in the report	31
II.	Sampling methodology for evaluation reports included	32
III.	Comments on the draft report received from Secretariat entities	33

I. Introduction

1. The present report is the fifteenth in the series of studies submitted biennially since 1988 to the General Assembly through the Committee for Programme and Coordination, in accordance with the Regulations and Rules Governing Programme Planning, the Programme Aspects of the Budget, the Monitoring of Implementation and the Methods of Evaluation (ST/SGB/2016/6). The planning, programming, budgeting, monitoring and evaluation cycle of the United Nations utilizes three sets of instruments: the strategic framework, to provide an overview of the Organization's activities; programme budget and programme performance reports, which provide workplans as well as monitoring and reporting on implementation; and the evaluation system, "which allows for continuing critical review of achievements, collective thinking thereon and formulation of subsequent plans".[1] In line with these regulations, this report:

(a) Describes and assesses evaluation structure, process and practice in the Organization (sect. III);

(b) Identifies good practices for impactful evaluations (sect. IV);

(c) Provides a summary of evaluations conducted during the biennium 2014-2015 and identifies key results from those reports, across the eight strategic priority areas of the Organization (sect. V);

(d) Presents the evaluation workplan of the Office of Internal Oversight Services (OIOS) for 2017-2018 (sect. VI).

II. Methodology

2. This report is based on information gathered across the 31 United Nations entities subject to OIOS oversight.[2] The following data-collection methods were employed:

(a) Screening of 446 reports received from 25 entities; 273, from 21 entities, were screened in as evaluation reports;[3]

[1] ST/SGB/2016/6, para. 2 (c).

[2] The Departments of Peacekeeping Operations and Field Support shared a focal point and are treated as a single entity for the purpose of this report.

[3] Reports were screened if they met the criteria set out in the following questions: (a) did the date of the report lie between 1 January 2014 and December 2015?; (b) was the report authored by OIOS, the Joint Inspection Unit, the Board of Auditors or a donor? (criterion for exclusion); (c) does the report assess an element of the entity's performance relative to its mandate or goals?; (d) does the report include a description of the methodology (defined as encompassing data sources, data collection and analysis methods, limitations and underlying analytical assumptions)?; (e) does the report include a description of the evidence?; (f) does the report contain findings and conclusions?; and (g) does the report include a forward-looking element, such as recommendations or a plan of action?

(b) Quality assessment by two external consultants of a randomly selected stratified sample of 100 evaluation reports from 21 entities;[4]

(c) Document review of 26 policies, 20 workplans and 429 documents related to evaluation procedures;

(d) Web-based survey of focal points representing all 31 entities, including questions on capacity and procedures for evaluation, use of reports and recommendations, best practices and lessons learned, and risks faced by the entity, with a response rate of 100 per cent;

(e) Interviews with focal points from 29 entities;

(f) Survey and analysis of staff work-months allocation, usage and impact for each of the evaluation reports (20 entities, 249 evaluation reports);[5]

(g) Case studies on good practice;

(h) Financial resources analysis, in consultation with, and with guidance from, the Office of Programme Planning, Budget and Accounts, of data from individual sections of the proposed programme budget for the biennium 2014-2015; the net total budget in the foreword and introduction to the proposed programme budget for the biennium 2014-2015; and compiled Form 12 data from the Office of Programme Planning, Budget and Accounts on breakdowns of financial allocations between monitoring and evaluation for 2014-2015.

3. The report is subject to several limitations:

(a) The document review and screening of reports was limited to the documents submitted by focal points;

(b) Where focal points were not evaluation staff members, some inaccuracies in reporting may have been introduced;

(c) Data on resources for and reports stemming from centralized and decentralized evaluation functions were, in some cases, aggregated;

(d) The methodology for assessing budget allocation towards outputs did not factor in time lags between budgeting, spending of resources and issuance of reports and outputs included in this assessment were limited to evaluation reports;

(e) There was significant variation across entities in respect of the accuracy and disaggregation of allocations for monitoring and evaluation; data derived from Form 12 were combined with data in the proposed programme budget sections to enhance the reliability of resource allocation measures across entities;

(f) Self-reported information from each entity was not independently verified, except in the case of select examples of impactful reports.

[4] The sampling methodology is presented in annex II. OIOS reports were included in (a) screening of reports and (b) quality assessment of reports. Six OIOS evaluation reports were included in the sample for quality assessment. OIOS was also included in financial analysis drawing on data from proposed programme budgets and Form 12. OIOS was not included in the document review, the focal points survey or the screened reports survey.

[5] The difference between the overall number of screened reports (273) and the number included in the survey of screened reports (249) was due to the exclusion of 18 OIOS reports and 6 reports of the Department of Political Affairs (produced by the Peacebuilding Support Office). The remaining reports of the Department of Political Affairs were surveyed through the Department focal point.

III. Evaluation structure, process and practice

A. There has been some strengthening of the evaluation functions within entities, as 11 entities made a structural shift towards greater independence

4. By the end of the biennium, most entities housed their evaluation function in a dedicated evaluation unit within a multifunctional division, as shown in table 1. Of the seven entities which had reported minimal or no evaluation activity in the previous biennium, one (Department of Safety and Security) now had a dedicated evaluation unit; three (Office of Legal Affairs, Office for Outer Space Affairs and United Nations Office at Geneva) reported evaluation activity despite the lack of an evaluation unit; and three others (Office for Disarmament Affairs, United Nations Office at Nairobi and United Nations Office at Vienna) continued to report a lack of evaluation activity.

Table 1
Structures of evaluation functions by the end of 2015

Stand-alone evaluation unit	*Dedicated evaluation unit within a multifunctional division*	*Unit not dedicated to evaluation (includes other activities within a multifunctional division)*	*No evaluation unit but some evaluation activity*	*No evaluation unit and no evaluation activity*
DPI	DGACM	ECE	DESA	ODA
UNCTAD	DPKO-DFS	ECLAC	DM	UNON
UNEP	DSS	ESCWA	DPA	UNOV
UNHCR	ECA		OOSA	
UNODC	ESCAP		OLA	
UN-Habitat	ITC		OSAA	
UN-Women	OCHA		OHRLLS	
	OHCHR		UNOG	
	UNRWA			

Abbreviations: DESA, Department of Economic and Social Affairs; DGACM, Department for General Assembly and Conference Management; DM, Department of Management; DPA, Department of Political Affairs; DPI, Department of Public Information; DPKO-DFS, Department of Peacekeeping Operations-Department of Field Support; DSS, Department of Safety and Security; ECA, Economic Commission for Africa; ECE, Economic Commission for Europe; ECLAC, Economic Commission for Latin America and the Caribbean; ESCAP, Economic and Social Commission for Asia and the Pacific; ESCWA, Economic and Social Commission for Western Asia; ITC, International Trade Centre; OCHA, Office for the Coordination of Humanitarian Affairs; ODA, Office for Disarmament Affairs; OHCHR, Office of the United Nations High Commissioner for Human Rights; OHRLLS, Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States; OLA, Office of Legal Affairs; OOSA, Office for Outer Space Affairs; OSAA, Office of the Special Adviser on Africa; UNCTAD, United Nations Conference on Trade and Development; UNEP, United Nations Environment Programme; UN-Habitat, United Nations Human Settlements Programme (UN-Habitat); UNHCR, Office of the United Nations High Commissioner for Refugees; UNODC, United Nations Office on Drugs and Crime; UNRWA, United Nations Relief and Works Agency for Palestine Refugees in the Near East; UNOG, United Nations Office at Geneva; UNON, United Nations Office at Nairobi; UNOV, United Nations Office at Vienna; UN-Women, United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women).

Source: Focal points survey.

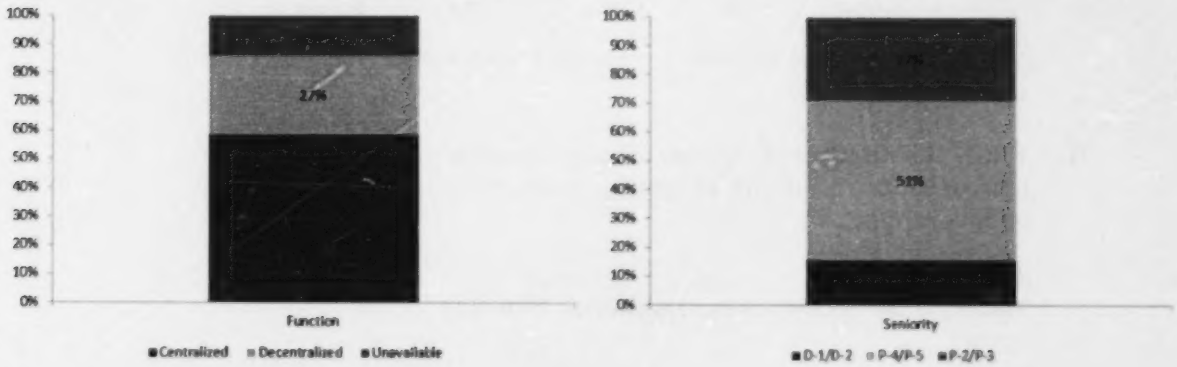
5. As compared with the previous biennium, reporting lines became more independent, as 15 entities had their senior-most evaluation staff member reporting to the head of the entity, of whom 2 reported to their governing body as well. For nine entities, the reporting line was to a staff member who was not the head of entity. Four entities had no evaluation staff at the end of 2015.[6]

6. In general, evaluation culture was reported as positive across the Secretariat.[7] In the survey of focal points, two thirds reported that the evaluation culture during 2014-15 had been excellent or good.[8] Support of senior management emerged as a strong determinant of culture. Several entities cited strengthened policies, procedures and capacity development among programme staff as examples of positive culture. Others noted lack of resources and capacity as the primary reason for their inability to demonstrate extensive activities despite the existing supportive culture.

7. Twenty-six entities reported that a total of 131 staff members were working on evaluation. Figure I presents a breakdown across staffing level and location.

Figure I

Function and seniority of Secretariat evaluation staff, for 131 evaluation staff members across 30 entities



Source: Focal points survey.

8. As shown in figure II, the average prior experience in evaluation of staff exercising that function at most levels across the Secretariat exceeds United Nations Evaluation Group standards, with staff at the P-5 level being the only exception.[9]

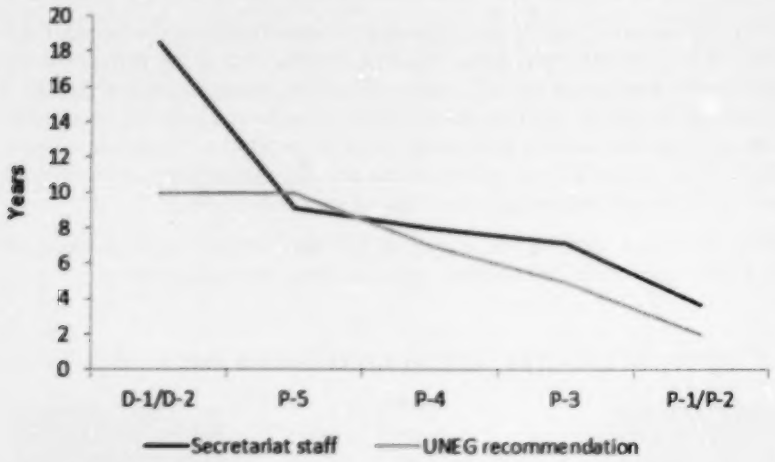
[6] Entities without evaluation staff included the Office for Disarmament Affairs, the Office for Outer Space Affairs, the United Nations Office at Nairobi and the United Nations Office at Vienna.

[7] As compared with 2012-2013, evaluation culture in 2014-2015 deteriorated for 6 entities, remained the same for 11 and improved for 13.

[8] Six entities reported the evaluation culture as excellent; 14, as good; 6, as fair; 2, as poor; and 2, as very poor. It is notable that five entities that did not produce evaluation reports rated their evaluation culture as good; and five others, while rating that culture as fair, said the function was nevertheless "sufficient" for their needs.

[9] The United Nations Evaluation Group (UNEG) documents entitled "UNEG Job Description for Evaluators in the UN System" provide guidance on the minimum required number of years of professional experience in evaluation for evaluators at the P-5 level (10), the P-4 level (7), the P-3 level (5) and P-1/P-2 (2).

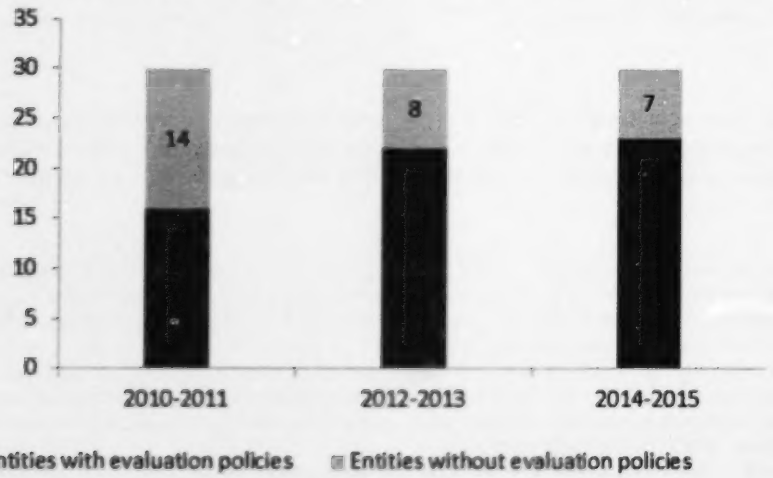
Figure II
Prior experience in evaluation of United Nations staff, compared with United Nations Evaluation Group standards, in years, for 131 staff members across 30 entities



Source: Focal points survey.

B. While the number of entities with evaluation policies and plans increased, the adoption of appropriate procedures continued to be incomplete

Figure III
Number of entities with evaluation policies, 2010-2015



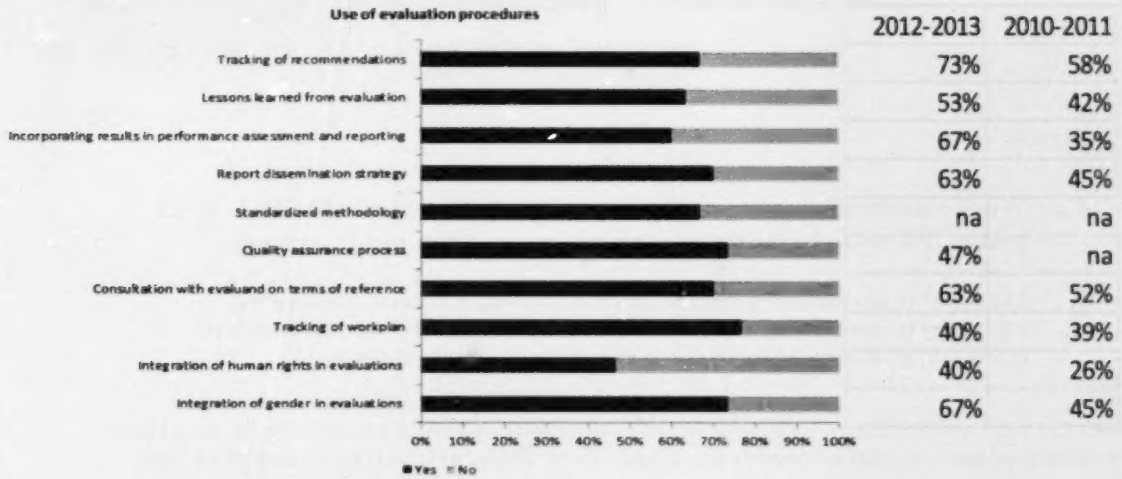
Sources: OIOS biennial reports for 2010-2011 (A/68/70) and 2012-2013 (A/70/72) and OIOS document review of evaluation policies.

9. As shown in figure III, the number of entities with evaluation policies had increased to 23 by the end of 2015.[10] Three other entities developed evaluation policies in 2016. However, the average quality rating of policies remained steady, at 1.5, compared with the previous biennium.[11] Mainstreaming gender and human rights in evaluation policies was a persistent challenge, reflected in low average scores.

10. While 24 entities reported the use of evaluation workplans covering 2014-2015 in the focal points survey, 19 submitted them to OIOS.[12] The document review of workplans suggested weaknesses in the areas of planning, earmarking of resources and specification of staff responsible for evaluations.

11. Twenty-three entities reported that they used at least one of several key procedures to support their evaluation work. However, as shown in figure IV, the document review found that fewer entities had formally instituted those procedures.

Figure IV
Evaluation procedures across 30 entities, 2010-2011 and 2012-2013
(Proportion of entities)

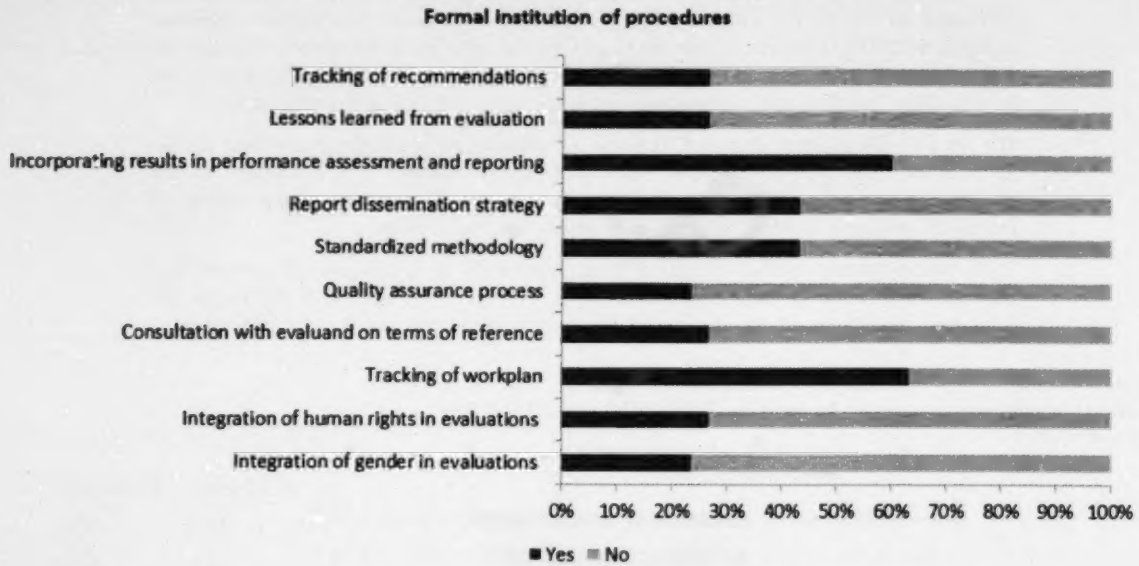


Source: Focal points survey.

[10] The Department of Safety and Security established its evaluation policy in the biennium 2014-2015; the Department of Public Information, the Department for General Assembly and Conference Management and the Office of the Special Adviser on Africa, in 2016. The Office of Legal Affairs, and the United Nations Offices at Geneva, Nairobi and Vienna continue to operate without an evaluation policy.

[11] Assessment of evaluation policies was based on 19 criteria of quality as described in the United Nations Evaluation Group "Norms and Standards for Evaluation" (2005). Fulfilment of individual criteria were scored from 0 to 2 based on the strength of the evidence; the average quality rating represents the mean under the 19 criteria. Policies created or updated in 2016 were not included.

[12] Evaluation plans for 2014-2015 were not submitted by the Department for General Assembly and Conference Management; the Department of Management; the Department of Safety and Security; the Office for Disarmament Affairs; the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States; the Office of Legal Affairs; the Office for Outer Space Affairs; the Office of the Special Adviser on Africa; the United Nations Office at Geneva; the United Nations Office at Nairobi and the United Nations Office at Vienna.


Formal institution of procedures
Tracking of recommendations
Lessons learned from evaluation
Incorporating results in performance assessment and reporting
Report dissemination strategy
Standardized methodology
Quality assurance process
Consultation with evaluand on terms of reference
Tracking of workplan
Integration of human rights in evaluations
Integration of gender in evaluations
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Yes
No

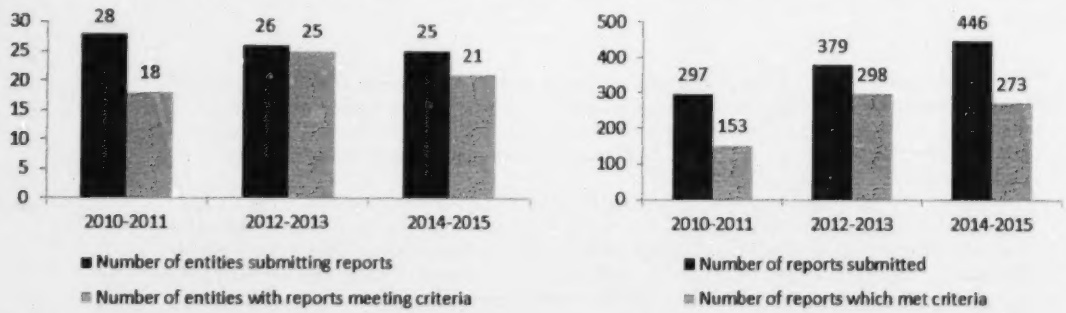
Source: Documents review.

C. While the number of evaluation reports declined in 2014-2015, focal points did report greater usage and impact than in prior years

The number of evaluation reports meeting screening criteria declined by 8 per cent in 2014-2015, from 298 to 273. However, other evaluation activities increased, as evidenced by the larger number of reports submitted[13]

Figure V

Number of entities submitting reports, number of entities with reports meeting criteria, number of reports submitted and number of reports meeting criteria, 2010-2011, 2012-2013 and 2014-2015



Sources: OIOS data, and documents A/70/72 and A/68/72.

[13] Submissions from the Department for General Assembly and Conference Management, the Department of Safety and Security, the Office of Legal Affairs and the United Nations Office at Geneva did not meet criteria for evaluation reports. See footnote 3 for screening criteria.

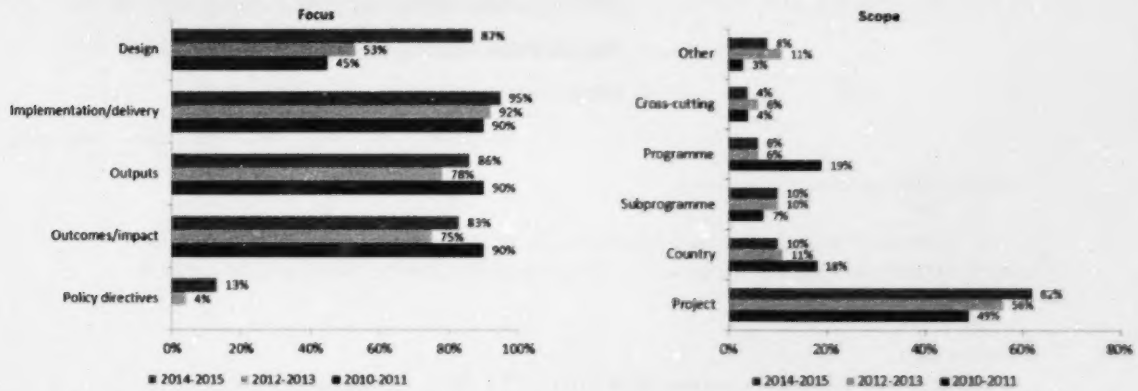
12. The number and proportion of submissions that met the screening criteria for evaluation reports declined from 2012-2013 to 2014-2015, as shown in figure V.

13. The quality assessment found that the reports covered all focus areas besides policy directives, as shown in figure VI. Narrow project-focused evaluations constituted 62 per cent of the total and many appeared to respond to project reporting requirements. With 10 per cent of the reports having a country-level scope and 4 per cent being of a cross-cutting nature, the potential to use these evaluations to inform entity-wide decisions appears limited.

Figure VI

Focus and scope of sampled evaluation reports, 2010-2011, 2012-2013 and 2014-2015

(Proportion of sampled reports)

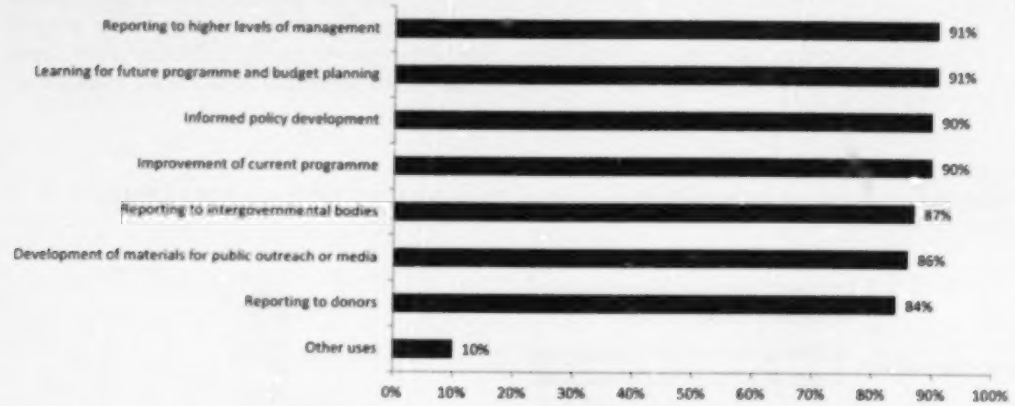


Source: Quality assessment of reports.

Focal points reported considerable usage of their reports in terms of immediate utility, longer-term outcomes and tracking of recommendations

14. At least one or more uses were cited by focal points for each of the 249 reports included in the survey of screened reports, as shown in figure VII.

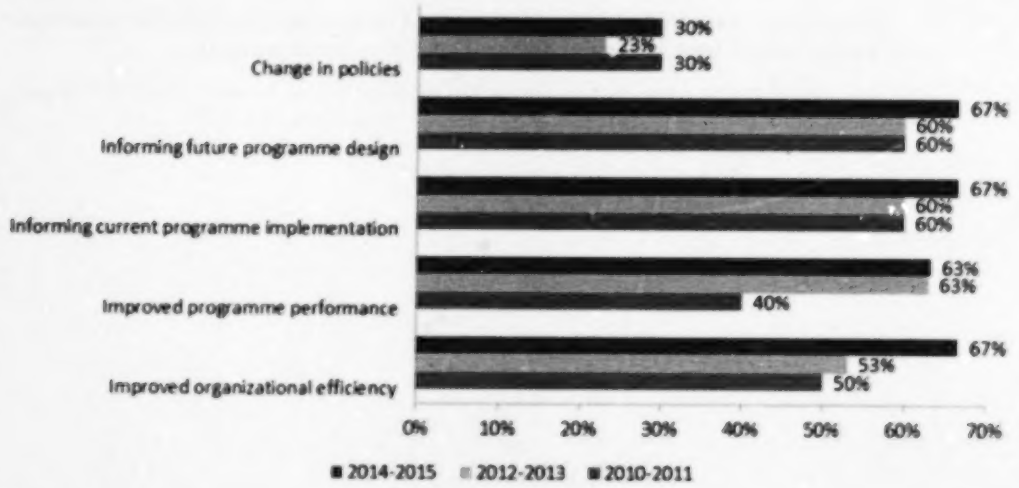
Figure VII
Uses of evaluation reports, 2014-2015
(Proportion of reports)



Source: OIOS screened reports survey.

15. Compared with the previous biennium, focal points reported an increase across most outcomes, with the exception of "improved programme performance", which remained steady (figure VIII).

Figure VIII
Outcomes of evaluation reports, 2010-2011, 2012-2013 and 2014-2015
(Proportion of entities)



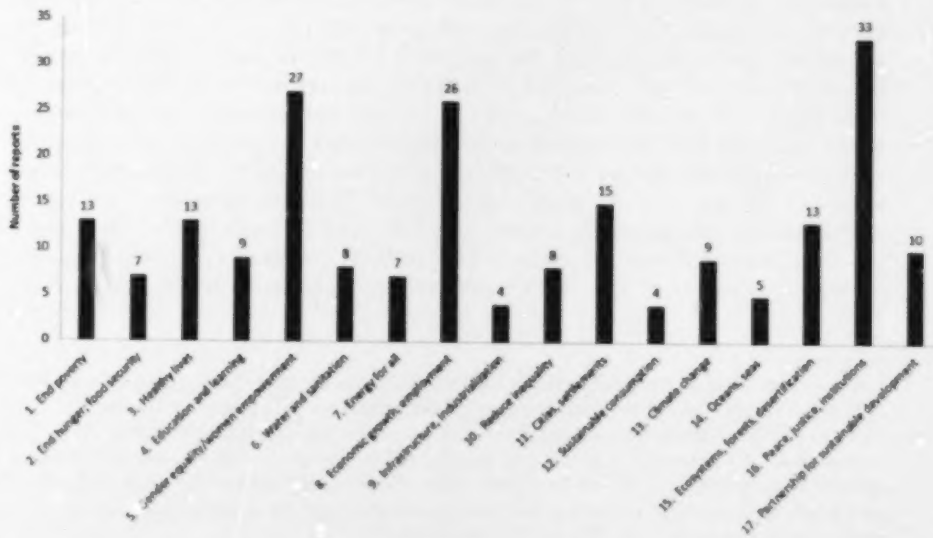
Source: OIOS focal points survey.

16. Twenty-five entities (83 per cent) cumulatively issued 3,084 recommendations in 2014-2015. During the same period 2,023 recommendations were due to be implemented, with 34 per cent outstanding at the time of reporting. The quality assessment of reports found about half (53 per cent) of the recommendations in sampled reports to be of good or excellent quality and 52 per cent were rated as actionable. Thus, while a considerable number of recommendations are stemming from evaluation reports, many are not actionable, possibly contributing to a high proportion of outstanding recommendations.

While most evaluation reports touched upon one or more Sustainable Development Goals, one quarter of all evaluation policies incorporated the measurement of target indicators for the Goals

17. The quality assessment of evaluation reports found that 95 per cent referenced one or more of the Sustainable Development Goals, predominantly in the areas of peace and justice, gender equality and economic growth, as shown in figure IX.[14] As the Sustainable Development Goals had been adopted only on 25 September 2015, they were referenced in the evaluation policies, plans or procedures by only 7 out of 30 entities. Nine entities indicated that the 2014-2015 evaluations may provide a baseline for future evaluations relating to the Goals.

Figure IX
References to the Sustainable Development Goals in 100 sampled evaluation reports, 2014-2015



Source: Quality assessment.

[14] The total of all reports referencing the Sustainable Development Goals is greater than 100 because many reports referenced more than one Goal.

D. A difference of 90 per cent or more was observed between resources allocated to discretionary self-evaluation and the costs of producing evaluation reports for 13 entities, suggesting the limited accuracy of reported budgets and the inclusion of activities that do not result in the production of evaluation reports under the discretionary self-evaluation allocation

18. Monitoring and evaluation funds in 2014-2015 were estimated at $56.6 million and represented 0.23 per cent of the total net budget of $24.3 billion.[15] At the entity level, the ratio of monitoring and evaluation budgets to total programme budget estimates ranged from 0.02 to 5.72 per cent. The Joint Inspection Unit has indicated a range of from 0.5 to 3 per cent of organizational expenditure for evaluation, while noting variation based on differences in the purpose of evaluation function, types of evaluations undertaken and economies of scale, which explain relatively lower proportions of evaluation budgets in larger organizations.[16] Combined monitoring and evaluation budgets for 12 individual entities and for the Secretariat as a whole fell below this range.

19. According to estimates reported by entities through their budget submission, less than half (46.7 per cent) of the total resources for monitoring and evaluation were assigned to evaluation, representing $26.4 million out of $56.6 million.[17]

20. Through adoption of an output-based approach to estimating evaluation costs, entities were asked to report on the staff and non-staff resources used in the production of those evaluation reports that were submitted for this review. Estimated resources for the 249 evaluation reports constituted $19.47 million. This amount comprised $9.3 million for staff costs (48 per cent), $9.2 million for consultants and other non-staff (47 per cent) and $1 million for other expenses, including travel (5 per cent).[18] The reported expenditure on evaluation reports represented 73.7 per cent of the amount allocated to discretionary self-evaluation, which suggested that $6.9 million of evaluation funds (26.3 per cent) were spent on evaluation activities that were not captured in evaluation reports. At the entity level, a gap of 90 per cent or more was observed between expenditure on report production and allocations for discretionary self-evaluation across 13 entities and a gap lying between 25 and 90 per cent for 4 entities. Five entities reported expenses for reports in excess of allocated discretionary self-evaluation funds, ranging from

[15] Sources: monitoring and evaluation funds: OIOS calculations for 2014-2015 estimates, extracted from individual sections of the proposed programme budgets for the biennium 2014-2015 (A/68/6) and supplemented with updated Form 12 figures for the Department of Public Information, the Department of Safety and Security and the Economic Commission for Europe, pursuant to the guidance of the Office of Programme Planning, Budget and Accounts; and total net budget, as set out in sect. A of the annex to the introduction to the proposed programme budget for the biennium 2016-2017 (A/70/6 (Introduction)).

[16] JIU/REP/2014/6, para 77. The recommendation of the Joint Inspection Unit is for evaluation expenditure only, as distinct from monitoring.

[17] Missing values for proportion allocated to discretionary self-evaluation was replaced using a mean of 46 per cent in the case of nine entities for which data were not available.

[18] Cost per report in United States dollars: mean = $78,202, median = $81,944, range = $10,650-$409,167, from screened report survey.

30 to 2,200 per cent, suggesting sources of extrabudgetary funding for evaluation.[19] In some cases, this gap resulted from little or no coordination between evaluation and budget focal points.

21. In September 2016, the Department of Management in consultation with OIOS issued revised guidelines to budget and evaluation focal points on the reporting of evaluation allocations. These guidelines specified that all activities that did not result in the production of evaluation reports should be labelled as monitoring.[20] The impact of these guidelines will become apparent in the reporting of evaluation resources for the budget for the biennium 2018-2019.

Evaluation practice is significantly limited in some entities, despite the allocation of evaluation funds

22. Six entities did not submit reports for this assessment (the Office for Disarmament Affairs, the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, the Office for Outer Space Affairs, the Office of the Special Adviser on Africa, the United Nations Office at Nairobi and the United Nations Office at Vienna). Submissions from four entities (the Department for General Assembly and Conference Management, the Department of Safety and Security, the Office of Legal Affairs and the United Nations Office at Geneva) did not meet the criteria for evaluation reports. Across these 10 entities, $3.7 million was cumulatively budgeted for discretionary self-evaluation, suggesting that this amount was used for evaluation activities that did not result in any evaluation reports during the biennium.[21] Some entities reported that such budgeted funds were strictly for monitoring and performance improvement activities and not for evaluations.

23. Entities with total programme budgets of less than US$ 100 million produced fewer evaluation reports than those with greater budgets: 7 of 10 entities without screened reports fell within this range. As evidenced by the Economic and Social Commission for Western Asia (ESCWA), however, this is not always the case. ESCWA allocated 0.40 per cent of its overall budget to monitoring and evaluation and produced nine evaluation reports during the biennium. Leadership provided by the office of the Executive Secretary and proactive engagement by the Evaluation Chief were identified as contributing factors to the Commission's strong function.

24. Entities with larger programme budgets (above US$ 100 million) generally produced evaluation reports, except for three.[22] Fragmented organizational structures, and challenges of evaluating management and support-oriented programmes contributed to a limited number of evaluation outputs within those entities.

---

[19] These results are based on analysis comparing data on discretionary self-evaluation with self-reported data from the screened reports survey. Data on discretionary self-evaluation were not available for nine entities.

[20] See also para. 54.

[21] The source is discretionary self-evaluation data. In the case of 1 of the 10 entities noted in para. 22, discretionary self-evaluation data was missing, and was replaced using the mean discretionary self-evaluation proportion of total monitoring and evaluation resources.

[22] Twenty-two entities had a budget of over $100 million; 8 had a budget of less than $100 million. The International Trade Centre was not included in this analysis.

IV. Good practice for more effective evaluations

25. While adequate policies, plans and procedures, resources and structural independence of evaluation functions are necessary elements of a robust evaluation function, it is increasingly evident that the establishment of these elements is not sufficient for the production of impactful evaluations which enable entities to effectively engage in learning while supporting accountability. Thus, this report entailed the assessment of some good practices, as identified by focal points and evaluands, to determine what elements facilitate more effective evaluation.

Timing is critical for determining the usability of reports

26. The timing of report issuance was repeatedly cited as having fundamental implications for the utility of evaluations. Well-timed evaluation reports were keenly anticipated by stakeholders, enjoyed support from senior management and were found to have a significant impact on strategic direction and planning. Evaluation functions could leverage their work planning in order to align the timing of the issuance of the report with the development of a programmatic initiative, the reassessment of strategic direction or the decision to launch a new programme or project. Several entities also described the need to disseminate results in a well-timed manner either through frequent issuance of results briefs throughout the evaluation, or annual compilations of results for governing bodies. For example, the purpose of the evaluation of the subprogramme of the ESCWA Centre for Women Division, which covered the Centre's strategic frameworks and work programmes for the period 2012-2015, was to identify strengths and lessons learned from the work of the Division in promoting gender equality and the elimination of discrimination against women. The fact that the evaluation was completed prior to the development of the 2016-17 workplan enabled management to apply its recommendations, address fragmentation of programmes and provide greater strategic focus to its work by reinstating previously successful programmes while withdrawing from those activities that were being better served elsewhere within ESCWA.

Conducting participatory evaluations

27. Engaging the evaluand early on during the evaluation cycle was found to be a critical element in ensuring its success and utility. A participatory approach and regular communication assisted in the internalization of the evaluation by the evaluand, leading to greater receptivity towards negative findings and cultivation of a "culture of accountability", and overall utility. For example, through substantive consultations with multiple groups of stakeholders, the formative evaluation of the United Nations Environment Programme (UNEP) medium-term strategy 2014-2017 assessed the appropriateness of the strategy. The key change that emanated was the adoption of a long-term horizon for the strategy by Member States in recognition of the extended timespan required by the various programmes, particularly those of a normative nature, to demonstrate their outcomes. The outlook for the strategy incorporated the 2030 development agenda and targets, as enshrined in the Sustainable Development Goals, and all other planning processes were consequently aligned to this long-term vision.

Developing usable recommendations

28. For evaluations to be successful, recommendations should be specific and realistic, and action plans should be time-bound, as attested through interviews with focal points and evaluands. As this would represent a challenge for external consultants, particularly in decentralized evaluations, entities suggested the use of steering committees and expert groups to develop more nuanced and meaningful recommendations. For example, the United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women) corporate evaluation of women's economic empowerment helped enrich the entity's programmatic work in several ways. By highlighting the need for UN-Women staff to engage strategically with macroeconomic issues at the country level, the evaluation provided the women's economic empowerment programme with the impetus to identify and address specific skills and knowledge gaps among staff members. This led to a course on gender and macroeconomics, which helped strengthen the capacity of its staff to engage with government authorities and policymakers on macroeconomic issues. Furthermore, UN-Women deepened its strategic partnerships, for example, with the International Monetary Fund (IMF), on gender-responsive budgeting, leading it to track more systematically the impact of national budgetary decisions on women. Finally, the evaluation enabled the Women's Economic Empowerment Section to consolidate multiple small-scale projects and leverage them into long-term flagship programming initiatives in order to deliver greater impact.

29. These good practices may be considered by all evaluation functions to enhance the utility and impact of evaluation in their respective contexts.

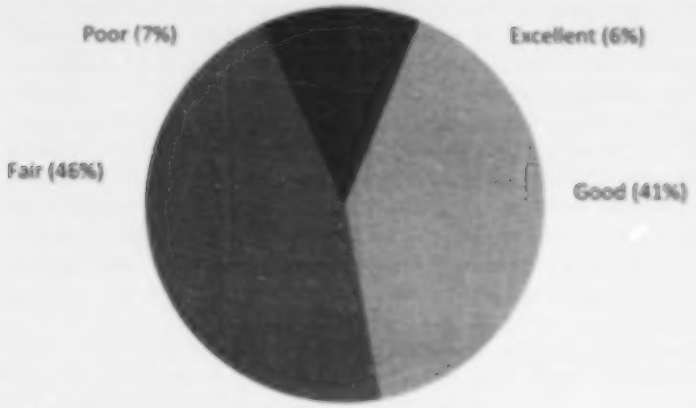
V. Quality of reports and selected results from evaluations produced during 2014-2015

Quality and coverage of evaluation reports

30. The quality assessment rated 100 randomly selected reports across a set of multiple standards, and compiled results from those rated "excellent" or "good" in the results section into a compendium of evaluation findings.[25] This assessment provided an important overview of the results of the evaluations conducted in 2014-2015 while also illustrating the relative strengths and weaknesses of those reports. Figure X shows the distribution of overall quality, which was comparable with that of previous years.

[25] The overall quality rating was based on a compilation of 30 criteria assessing each report's executive summary, introduction, methodology, background, results, conclusions, recommendations and format.

Figure X
Overall quality of 100 evaluation reports, by rating, 2014-2015



(Proportion)

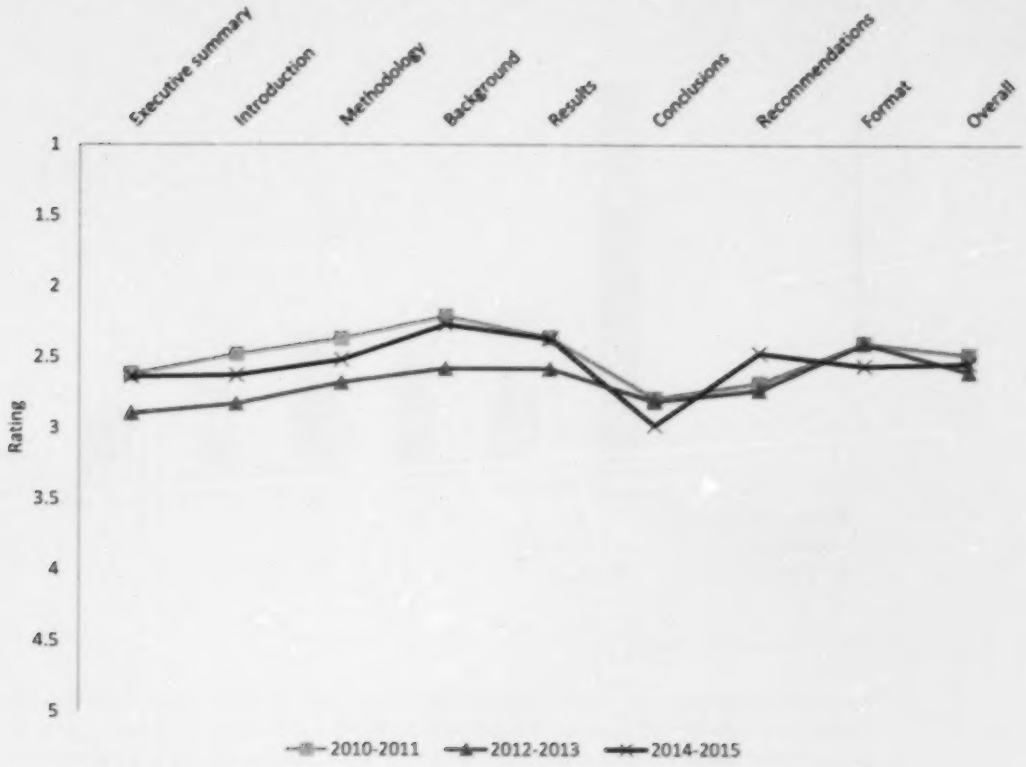
Source: Quality assessment.

31. Six reports, from the Economic Commission for Europe (ECE), the Economic Commission for Latin America and the Caribbean (ECLAC), the International Trade Centre (ITC), the Office for the Coordination of Humanitarian Affairs of the Secretariat, the Office of the United Nations High Commissioner for Refugees and UN-Women, received an overall rating of excellent. The overall quality of the evaluation reports was fair (with an average value of 2.54), which was comparable with the quality of the reports of the previous biennium (with an average value of 2.65).[24] The quality of most sections improved, although average scores decreased for the format and the conclusions section (figure XI).[25] No reports were rated very poor.

[24] Figure XI rating interpretation: 1.50 - 2.49 = good; 2.50 - 3.49 = fair.

[25] Almost two thirds of the reports (61 per cent) had results (evaluation findings) of good quality (51 per cent) or excellent quality (10 per cent), representing an improvement compared with the previous biennium (2012-2013). The share of good or excellent results increased from 50 (in 2012-2013) to 61 per cent.

Figure XI
Quality of evaluation reports by section, 2010-2011, 2012-2013 and 2014-2015

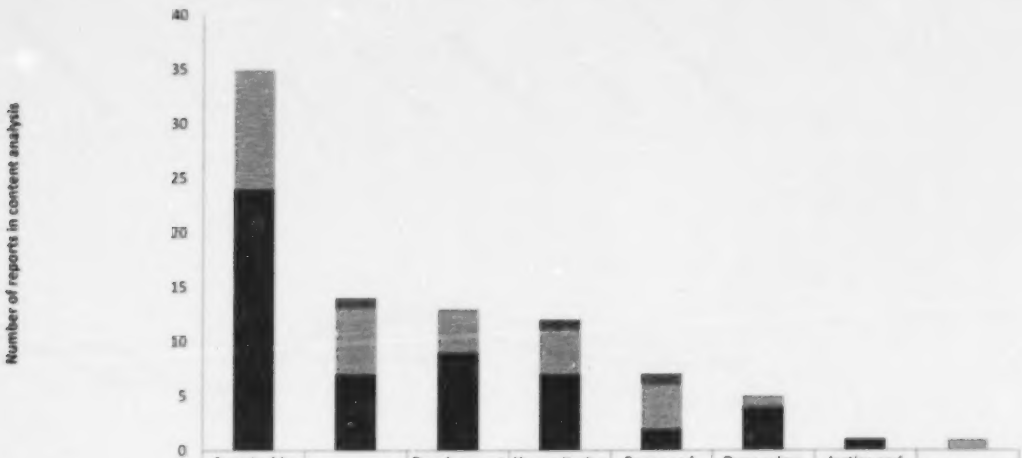


Source: Quality assessment.
Note: Average rating across all reports: rating: 1 = excellent, 2 = good, 3 = fair, 4 = poor, 5 = very poor.

32. Figure XII displays the distribution of reports rated good or excellent for the quality of their results section across the Secretary General's eight priority areas. [26]

[26] Sixty-one reports received good or excellent scores in their results section. The total of all reports shown in figure XII is greater than 61 because several reports can be attributed to more than one priority area.

Figure XII
Distribution of evaluation reports by priority area, 2014-2015



	Sustainable development	Human rights	Development for Africa	Humanitarian assistance	Peace and security	Drug, crime and terrorism	Justice and law	Disarmament
Largely negative results	0	1	0	1	1	0	0	0
Mixed results	11	6	4	4	4	1	0	1
Largely positive results	24	7	9	7	2	4	1	0

Source: Quality assessment.

33. Gender dimensions were better mainstreamed than human rights. Twenty-eight evaluations examined work of the United Nations in the area of human rights or incorporated human rights principles, while 33 reports adopted a gender dimension for the subjects being evaluated.

34. Under rule 107.2b of the Regulations and Rules Governing Programme Planning, the Programme Aspects of the Budget, the Monitoring of Implementation and the Methods of Evaluation: "Programme managers shall, in collaboration with their staff, undertake self-evaluation of all subprogrammes under their responsibility." Under rule 107.2 (b) (i): "The timing, scope and other characteristics of a self-evaluation study shall be determined by the nature and characteristics of the activities programmed and other relevant factors." Allowing for the entity-specific identification of the appropriate periodicity of evaluation, subprogramme coverage provided by evaluation reports produced in 2014-2015 is presented in table 2.[27]

[27] Data were not available for UNHCR and the Office for the Coordination of Humanitarian Affairs of the Secretariat.

Table 2
Coverage of subprogrammes by evaluation reports produced in 2014-2015

Less than 50 per cent	*50-74 per cent*	*75-99 per cent*	*100 per cent*
DM	DESA	DPKO	ESCAP
DPA	DPI	OHCHR	ESCWA
ECE	ECLAC		ITC
ECA	UNODC		UNCTAD
			UNEP
			UN-Habitat
			UNRWA
			UN-Women

Source: Focal points survey and screened reports survey.
Note: For abbreviations, see footnote to table 1 above.

Selected results by priority areas

Promotion of sustained economic growth and sustainable development

35. In this area, 35 out of 61 reports received good or excellent ratings for their results. Of these, 24 presented largely positive results and 11, mixed results. Selected highlights from the reports include the following observations:

- The 2014 Climate Summit was more clearly branded as a United Nations event than previous such conferences. The United Nations and the Secretary-General had a high level of visibility. The Summit was mentioned in 87 per cent of total analysed clippings with media coverage being positive overall. The use of celebrity spokespersons over social media helped enable new audiences to be reached and drawn towards United Nations accounts.
- UNCTAD peer reviews of competition laws and policies were hailed for delivering practical recommendations with clear national road maps so as to minimize constraints on economic productivity. Competition authorities were equipped with a high-quality analysis of their competition protection frameworks and provided follow-up technical assistance. The peer review process contributed to improved competition climates in 10 out of 12 reviewed countries in the form of improved legislation; however, enforcement still needed to be strengthened.
- The concept of pro-poor public-private partnerships (the 5P approach) as a possible approach to increasing access to rural energy was met with considerable interest by Member States and the private sector. However, because the necessary technical assistance was lacking, demonstration projects evolved differently across countries, which led to the dilution of the main principles. As a result, several setbacks and challenges were encountered in

relation to their financial viability and the selection of appropriate business models and appropriate communities.

- Progress has been made in measuring women's unpaid work in the Latin America and Caribbean region, to which this project contributed significantly by means of methodological and conceptual support for improving the quality of measurement instruments in two ways, namely, through the classification of time-use activities which allows for international comparisons; and the adoption of the "total work time" indicator. Users found the quality of activities under this project to be very high. Advocacy, partnerships and policy dialogue helped ensure that the topic remained high in the agenda and that the production and analysis of statistics were encouraged.

- The International Trade Centre has, despite significant constraints, continued to provide high-quality services which are relevant and responsive, effective and relatively efficient. The activities have achieved their intended immediate capacity-building outcomes, with clear prospects in most cases of contributing to their higher-level goals. On the other hand, the overall resource situation of the Centre severely limited its ability to service requests in a systematic manner: there was no catalogue of products or a planned approach to needs assessment in place.

Promotion of human rights

36. In the area of promotion of human rights, 14 reports received high ratings for their results section. Of these, seven presented largely positive results; six, mixed results; and one, largely negative results. Key results included the following:

- Although efforts of UNHCR to build resilience and self-reliance for refugees were slowly expanded, an OIOS report found that the efforts of the Office of the High Commissioner were less successful in achieving long-term solutions for persons of concern in protracted refugee situations, being largely oriented towards an emergency response model and hampered by an annual planning and budgeting cycle. Nevertheless, the level 3 emergency response protected South Sudanese refugees by enabling unhindered, non-discriminatory access to Ugandan territory, registration and essential protection services. It saved lives and provided refugees with some degree of self-reliance. The expansion and improvement of health and nutrition services had positive outcomes for both the host population and the refugee community, and outbreaks of communicable diseases were largely avoided.

- The work of the Office of the United Nations High Commissioner for Human Rights addressed discrimination in the Republic of Moldova across various fronts. New legislation on alternative military service in the Transnistrian region was adopted and LGBT pride marches were safely carried out. The segregation of Roma and non-Roma students in a number of schools was discontinued. The competence of judicial and quasi-judicial bodies with respect to addressing discrimination in accordance with international law was strengthened, as was the documentation and pursuit of over 50 emblematic discrimination cases. A non-governmental organization established to represent parents of children with disabilities was invited to advise the Ministry of Education on inclusion.

Development of Africa

37. Thirteen reports received high ratings for the quality of their results section. Of these, nine presented largely positive results and four, mixed results. Key results included the following:

- The United Nations Human Settlements Programme (UN-Habitat) operated in all key areas of intervention, effecting the transition to recovery and development by applying the guiding principles on obtaining results when working in an early recovery context focused on pertinent country-specific physical development issues that influence the peace process. However, the sometimes modest scale of projects and reliance on donor funding limited visibility, coherence and feasibility with respect to working strategically on key urbanization themes. Nevertheless, UN-Habitat integrated the same recurring themes in various projects to obtain impact through scale and repetition.
- The experiment of the market-based payment for ecosystem services scheme revealed that although reduced deforestation and increased reforestation in forest areas outside of formally protected areas in western Uganda were achieved by the treatment group as compared with the control group, the results were not of sufficient statistical significance to provide a convincing rationale for replicating the programme across Uganda. The payment for ecosystem services scheme provided income and other social benefits which incentivized people to refrain from cutting down or degrading forests and led to the creation of a strong network of non-government and civil society organizations.
- The Ministry of Gender of Mozambique was supported in expanding social mobilization for zero tolerance towards violence against women. Successful interventions encompassed the UNiTE to End Violence against Women campaign with secondary school students and training sessions for officials in charge of implementing the integrated mechanism of assistance to women and girls who were victims of violence. Ministry staff were trained on gender-responsive budgeting, which resulted in the development and effective use of the simplified gender matrix. Government capacities were built to promote gender-sensitive employment policies and workforce skills. Women were trained to act as observers in the October 2014 elections and political party members were trained to increase their leadership capacity. However, the achievement of the overarching gender equality and women's empowerment outcomes was limited.

Effective coordination of humanitarian assistance efforts

38. Twelve reports in this priority area received good or excellent ratings for the overall quality of their results sections. Of these, seven presented largely positive results; four, mixed results; and one, negative results. Key results included:

- Humanitarian assistance efforts were evaluated in South Sudan, Somalia and the Central African Republic. The evaluations in South Sudan and the Central African Republic provided evidence of valuable gains achieved through contributions of the Common Humanitarian Funds in those countries.

However, the evaluation in Somalia noted a decrease in global funding, attributed to competing priorities for humanitarian assistance as well as a shift towards rehabilitation funding as security in Somalia continues to improve.

- Collaboration with Delivering as One, which is based on the multidimensional nature of poverty and inequality, can be beneficial for UNHCR in its efforts to deliver durable solutions for its persons of concern, as demonstrated by a small but growing body of evidence that suggests that where UNHCR has been part of the common country assessment, its persons of concern were afforded the same level of prioritization as others in the One Programme. However, generally speaking, UNHCR had limited success in galvanizing collective programme and policy support through the Delivering as One initiative, owing to the lack of consolidated internal guidance and the inconsistent manner in which human rights are considered. The programme approach and business systems of UNHCR are ill adapted to joint programming activities.

- The family health team approach was highly relevant to Palestine refugees: it was appropriate in terms of providing them with primary health care. That approach increased the overall health status of the population and the level of services while decreasing costs over time. Screening, diagnosis and treatment of non-communicable diseases as well as outreach activities improved.

Maintenance of international peace and security

39. Seven reports in this area received good or excellent ratings for the quality of their results section. Of these, two presented largely positive results; four, mixed results; and one, negative results. Highlights included:

- Steps taken through the enforcement and remedial assistance efforts for sexual exploitation and abuse by the United Nations and related personnel in peacekeeping operations, contributed to a reduction in reported sexual exploitation and abuse allegations. However, despite a downward trend, sexual exploitation and abuse allegations persisted, i.e., there were 480 allegations between 2008 and 2013, with those involving minors accounting for over one third of all allegations. Unclear distribution of responsibilities within the enforcement architecture, compounded by long delays in completing investigations, undermined its effectiveness. Evidence from peacekeeping missions in Haiti and Liberia suggested that transactional sex was quite common but underreported. Additionally, wide variations in sanctions weakened the commitment to zero tolerance. Remedial assistance to victims was very weak.

Drug control, crime prevention and combating international terrorism

40. In the area of drug control, crime prevention and combating international terrorism, five reports received good or excellent ratings for the overall quality of their results section. Of these, four presented largely positive results and one, mixed results. The reports covered the provision of basic social assistance to at-risk populations as a part of HIV/AIDS prevention and management, institution-building with regard to prison reform and anti-money laundering, and research on corruption and drugs. In general, results were based on project-level evaluations. For example, the reports evidenced the effectiveness of social assistance interventions for at-risk

populations in HIV/AIDS prevention and management in East Africa, and the impact of extensive criminal justice reform in Kyrgyzstan. Other reports documented more limited evidence of success such as the evaluation of anti-corruption initiatives in the Mekong region which noted that although national laws had improved in terms of their compliance with international standards and although officials had become more knowledgeable and aware, there were fewer actual investigations, seizures and prosecution.

Promotion of justice and international law

41. The one report that fell under this priority area received a good or excellent rating for the quality of its results sections and presented largely positive results. The evaluation of the Peacebuilding Fund response to the need to restore justice and reconciliation in Sierra Leone found that with Fund support, the reparation programme for war victims had been implemented as planned: 13,526 war victims received cash assistance and 1,138 amputee victims, who had received assistance in 2009, were given an additional payout. The completion of the reparation process and the implementation of the recommendation of the Truth and Reconciliation Commission helped ensure the provision of material assistance to the victims in securing their livelihoods while also constituting a symbolic act of acknowledgement of their suffering and demonstrating a commitment to restoring justice.

Disarmament

42. As in the previous paragraph, covering promotion of justice and international law, there was only one well-ranked report on disarmament, related to the priority areas of the Peacebuilding Fund. The priority areas were found to be relevant to peacebuilding needs and sufficiently broad. However, concerns were expressed about ensuring that Fund programming in social security reform and disarmament, demobilization and reintegration of former combatants adds distinct value based on its own criteria and does not simply top up an already existing donor-funded pool of resources.

VI. Evaluation workplan of the Office of Internal Oversight Services

43. In 2016-2017, OIOS will have completed evaluations for the following entities:

- UNHCR:

  (a) UNHCR engagement with and for refugees and internally displaced persons (IDP) in mixed refugee and IDP settings;

  (b) UNHCR role in the registration of refugees and asylum seekers

- Department of Political Affairs
- UNRWA
- Office of the United Nations High Commissioner for Human Rights
- Office for the Coordination of Humanitarian Affairs

- ECE
- ESCWA
- Executive Office of the Secretary-General

44. The following thematic evaluations will have been completed in 2016-2017:

- Work of the regional commissions

45. In peacekeeping evaluation, the following evaluations will have been completed during 1 July 2016-30 June 2017:

- Integration between peacekeeping operations and United Nations country teams
- Results of national police capacity-building
- Strategic deployment stocks
- Force generation
- Robust peacekeeping
- "Rehatting" in peacekeeping missions

46. For the biennium 2018-2019, OIOS further refined its evaluation risk assessment exercise, including more systemic consideration of the framework of the Secretariat enterprise risk management risk register. The following entities and themes have been identified for evaluation in 2018-2019:

- The Offices of the Special Representatives of the Secretary-General for Children and Armed Conflict, on Sexual Violence in Conflict and on Violence Against Children
- Department of Public Information
- Department for General Assembly and Conference Management
- Office for Disarmament Affairs
- Department of Management
- UNHCR
- Office of Legal Affairs
- UNEP

47. In accordance with the seventh paragraph of the statement by the President of the Security Council of 16 November 2015 (S/PRST/2015/21) and pursuant to paragraph 22 of Council resolution 2256 (2015), of which the General Assembly took note in its resolution 70/227, the following evaluation has been planned:

- Evaluation of the work and methods of the International Residual Mechanism for Criminal Tribunals

48. In order to ensure capacity to enable the consideration of ad hoc requests for evaluation from intergovernmental bodies or senior management, two entities will be subject to OIOS evaluation only if no ad hoc requests are received by December 2017, namely:

- Office for Outer Space Affairs
- Office of the Special Adviser on Africa

49. The following thematic evaluation has been identified for completion in 2018-2019:

- Thematic evaluation of preparedness and policy coherence of United Nations Secretariat entities and UNHCR to implement, monitor and report on their contributions to the Sustainable Development Goals

50. In addition to the evaluations, as required by the General Assembly in its resolution 37/234, OIOS will be completing, in 2018, the following triennial reviews for evaluations completed in 2015:

- Triennial reviews of the implementation of recommendations from 2015 evaluations for UNHCR, UN-Women, UNCTAD, ITC, ECLAC, ESCAP and UN-Habitat

51. Tentatively planned evaluations in peacekeeping during 1 July 2017-30 June 2018 include:

- Evaluation of protection of human rights in peacekeeping operations
- Evaluation of the United Nations Mission in South Sudan (UNMISS)
- Triennial review of the implementation of recommendations contained in the OIOS evaluation report on the enforcement and remedial assistance efforts for sexual exploitation and abuse by the United Nations and related personnel in peacekeeping operations

52. A further peacekeeping evaluation/review is to commence and to be completed in 2017:

- Triennial review of implementation of recommendations contained in the OIOS evaluation report on the implementation and results of protection-of-civilians mandates in United Nations peacekeeping operations

VII. Follow-up on the recommended actions of the Committee for Programme and Coordination

53. In its consideration of the previous biennial report, the Committee for Programme and Coordination recommended, in paragraph 95 of the report on its fifty-fifth session (A/70/16), that the General Assembly should endorse the following recommendations contained in paragraphs 65-67 of document A/70/72:

(a) Entities that do not currently have an evaluation policy should develop one;

(b) In order to strengthen their overall evaluation capacity, all entities should ensure that key evaluation procedures are in place;

(c) The Department of Management, in consultation with OIOS, should improve the existing guidelines for planning and formulating the estimated

resources (regular budget and extrabudgetary) for monitoring and evaluation activities in the programme budgets.

54. As of the time of the preparation of the present report, evaluation policies have been developed by the Department for General Assembly and Conference Management, the Department of Public Information, the Department of Safety and Security and the Office of the Special Adviser on Africa. The Office of Legal Affairs is in the process of finalizing its evaluation policy, which is currently in draft form. The United Nations Offices at Geneva, Nairobi and Vienna have agreed to work together on drafting a common policy.

55. The current status of adoption of recommended procedures was assessed based on documentary evidence that relevant procedures had been formally instituted and/or had been shown to be in use. With regard to:

(a) Developing an evaluation workplan, all entities except the Office of the High Representative for the Least Developed Counties, Landlocked Developing Countries and Small Island Developing States, the Office of Legal Affairs and the United Nations Offices at Nairobi and Vienna submitted evidence of this procedure;

(b) Developing action plans for implementing evaluation recommendations, all entities except the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, the Office of the Special Adviser on Africa, the Office of Legal Affairs and the United Nations Offices at Geneva, Nairobi and Vienna submitted evidence of this procedure;

(c) Tracking and/or monitoring the implementation of evaluation recommendations, all entities except the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, the Office of Legal Affairs, the Office of the Special Adviser on Africa and the United Nations Offices at Geneva, Nairobi and Vienna submitted evidence of this procedure;

(d) Sharing and/or disseminating evaluation reports, all entities except the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, the Office of Legal Affairs, the Office of the Special Adviser on Africa and the United Nations Offices at Geneva, Nairobi and Vienna submitted evidence of this procedure;

(e) Sharing and/or disseminating lessons learned from evaluation, all entities except the Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, the Office of the Special Adviser on Africa, the Office of Legal Affairs and the United Nations Offices at Nairobi and Vienna submitted evidence of this procedure;

(f) Feeding evaluation results back into programme planning and implementation, all entities except the Office of the United Nations High Commissioner for Refugees, the Office of Legal Affairs and the United Nations Offices at Nairobi and Vienna submitted evidence of this procedure.

56. The Department of Management and OIOS have worked together to improve the existing guidelines for completing Form 12, i.e., with respect to planning and formulating the estimated resources for monitoring and evaluation activities in the

programme budgets for 2018-2019. The revised guidelines provide entities with the following instruction:

> "Resources that are directly related to self-evaluation activities that result in evaluation reports should be reported as self-evaluation resources. All other assessment activities and related resources that do not result in evaluation reports should be reported under "Mandatory self-assessment/monitoring".

57. The General Assembly, in its resolution 70/8 of 13 November 2015, endorsed, inter alia, the four recommendations of the Committee for Programme and Coordination, as contained in the report on the work of its fifty-fifth session (A/70/16, paras. 99 and 104-106) that the Assembly should request the Secretary-General to take concrete steps to develop capacity and strengthen the culture for evaluation throughout the Organization. In response to these recommendations and to Assembly resolution 70/255 of 1 April 2016, in which the Assembly emphasized the need to strengthen evaluation and its use as a means of improving performance, the Management Committee of the Secretary-General reviewed and discussed the challenges of strengthening evaluation at two of its meetings, on 12 May and 17 November 2016, where it was decided that OIOS and the Department of Management should work together to determine how evaluation might be strengthened. Through this report, OIOS has transmitted these pending recommendations to the office of the newly appointed Secretary-General for consideration and implementation, and will report on progress thereon in the next report in 2019.

VIII. Conclusions

58. The Committee for Programme and Coordination has emphasized the importance of a strong evaluation function as a critical tool for assessing the Organization's performance, through which accountability could be enhanced and lessons could be learned to achieve stronger results.[28] The current assessment has noted that although much progress has been made, some entities still lack an effective evaluation function: they either operate without an evaluation policy (four entities) or lack the necessary expertise (four entities). Several entities still fall short of proposed benchmarks established by the Joint inspection Unit in the allocation of resources. Consequently, entities are able to undertake only limited evaluation activities. Without the establishment of an evaluation policy and the allocation of dedicated resources for evaluation, including staff time and expertise, the evaluation function within an entity cannot develop.

59. Several entities that have established evaluation polices did not conduct evaluations for the period under review. Those entities either tended to be smaller in size or had management and support mandates. Efforts to strengthen the evaluation function in such entities should be strategic and tailored towards addressing the needs of these entities and the barriers preventing them from developing a more robust function relevant to their work.

[28] A/70/16, para. 96.

60. There is significant ambiguity in the relationship between the reporting of resources allocated towards evaluation and the conduct of evaluation that results in evaluation reports. Issuance of the new guidelines prepared by the Department of Management in consultation with OIOS for distribution to the budget and evaluation focal points aim at helping to ensure that evaluation workplans are better aligned with evaluation budgets, and that there is a clearer differentiation between monitoring and evaluation.

61. The importance of a strong internal evaluation culture cannot be overstated. As noted in prior reports, management support is a prerequisite for a strong evaluation function.

62. With the recommendations of the Committee for Programme and Coordination, as contained in document A/70/16, pending implementation, OIOS wishes to make one additional important recommendation aimed at strengthening evaluation budgeting.

IX. Recommendations

Recommendation 1 (see sect. III, result D, para. 20):

63. **Budgeting of evaluation resources should be better aligned with evaluation plans, and evaluation outputs should better reflect such plans and budgets:**

Evaluation focal points should coordinate with budget focal points regarding the planned evaluation outputs so as to ensure the appropriate allocation of resources pursuant to the circulated guidelines.[29]

Responsible entity: all entities

Indicator of achievement: all entities' allocated resources for evaluation are commensurate with planned evaluation outputs.

[29] See sect. F of note entitled "Background on evaluation", available through the References tab at the budget website (http://ppbd.un.org/Ppbd_bi18/ReviewDates.aspx#).

Annex I

List of entities included in the report

1. Department of Economic and Social Affairs
2. Department of Field Support
3. Department for General Assembly and Conference Management
4. Department of Management
5. Department of Peacekeeping Operations
6. Department of Political Affairs
7. Department of Public Information
8. Department of Safety and Security
9. Economic Commission for Africa (ECA)
10. Economic Commission for Europe (ECE)
11. Economic Commission for Latin America and the Caribbean (ECLAC)
12. Economic and Social Commission for Asia and the Pacific (ESCAP)
13. Economic and Social Commission for Western Asia (ESCWA)
14. International Trade Centre (ITC)
15. Office for the Coordination of Humanitarian Affairs
16. Office for Disarmament Affairs
17. Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
18. Office of Legal Affairs
19. Office for Outer Space Affairs
20. Office of the Special Adviser on Africa
21. Office of the United Nations High Commissioner for Human Rights (OHCHR)
22. Office of the United Nations High Commissioner for Refugees (UNHCR)
23. United Nations Conference on Trade and Development (UNCTAD)
24. United Nations Entity for Gender Equality and the Empowerment of Women (UN-Women)
25. United Nations Environment Programme (UNEP)
26. United Nations Human Settlements Programme (UN-Habitat)
27. United Nations Office on Drugs and Crime (UNODC)
28. United Nations Office at Geneva (UNOG)
29. United Nations Office at Nairobi (UNON)
30. United Nations Office at Vienna (UNOV)
31. United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)

Annex II

Sampling methodology for evaluation reports included

Stratified random sampling was used to identify 100 reports for the quality assessment based on the number of evaluation reports screened in for each entity. The table below presents the strata used to determine the number of reports to be sampled for each entity.

Stratified random sampling tiers

Minimum number of reports screened	*Percentage sampled*
1	100
2-5	75
6-15	50
16-30	33
31-45	25
46-53	20

Annex III

Comments on the draft report received from Secretariat entities

Executive Office of the Secretary-General

The report on strengthening the role of evaluation and the application of evaluation findings in programme design, delivery and policy directives in the United Nations Secretariat was received with appreciation. The results of the report for the period 2014-2015 are acknowledged.

The matter of evaluation was taken up by the Management Committee in May 2016. At that time, the Committee emphasized the importance of the evaluation function and, bearing in mind the requests of the General Assembly contained in paragraphs 15-18 of its resolution 70/255 of 1 April 2016, the Committee decided to revert to the strengthening of evaluation in the last quarter of 2016. In line with this decision, the matter was again taken up by the Committee at a meeting in November 2016, at which OIOS informed the members that, while the overall assessment of self-evaluation capacity across the Secretariat during 2014-2015 suggested that implementation of policies towards self-evaluation had improved, there continued to be a need to strengthen evaluation capacity in various entities. In light of views expressed on resource requirements and how best to provide direct support to departments and offices, the Management Committee agreed that management should develop a unified approach to strengthening evaluation.

Strengthening the evaluation function is in the 2017 agenda of the Management Committee. The Committee will consider further ways to strengthen the evaluation function, including a unified approach to developing and enhancing existing capacity.

The Secretary-General attaches great importance to building a robust evaluation function within the Secretariat based on appropriate policies, methodologies, plans, resources and best practices. In building this capacity, and with due regard to the operational independence of OIOS, the Secretary-General looks forward to the support and guidance of OIOS, as appropriate, and in accordance with its mandate.

Thank you for the opportunity to comment on the report.

Department of Economic and Social Affairs

The reference to evaluation reports as an output: "Outputs" in the context of substantive departments like the Department of Economic and Social Affairs refers to those outputs under its mandated programme of work. As such, it is unclear if evaluation plans and reports fall within the same classification as the substantive outputs of the Department.

Department of Political Affairs

The Department of Political Affairs welcomes the report of OIOS on strengthening the role of evaluation and the application of evaluation findings on programme design, delivery and policy directives. We are thankful to our colleagues in OIOS for this report, which outlined areas of strength in delivery and identified priority actions required to ensure that the Department remains fit for purpose. To this end, the Department of Political Affairs took immediate steps to address areas

of improvement outlined in the evaluation, chief among which has been to recruit a dedicated evaluation function and allocate resources to oversee the development and implementation of evaluation plans and outputs.

We fully accept the recommendation emanating from the report with regard to ensuring that the budgeting of evaluation resources is better aligned with evaluation plans, and that evaluation outputs better reflect such plans and budgets. Our new evaluation capacity is working in close conjunction with OIOS to ensure that our policies are in line with the updated United Nations Evaluation Group Standards and Norms, in addition to keeping OIOS and colleagues in the Department of Peacekeeping Operations and the Peacebuilding Support Office informed of future activities so as to ensure synergies in evaluation and sharing of recommendations and lessons learned.

I take note that the OIOS report classifies the Department of Political Affairs among entities with no evaluation unit, but with some evaluation activity (reference: para. 4, table 1). I would like to note that at the beginning of 2017, the Department of Political Affairs established a full capacity, at the Professional level and within my Office, dedicated to evaluation and assessment of the work of the Department, its impact and progress in implementation of our mandate. The staff member complements other internal resources that were traditionally dedicated to these areas within the established staffing table of the Office of the Under-Secretary-General (P-5 and General Service staff on a part-time basis).

Criteria for allocation of resources for evaluation

Resources for 2017 activities are allocated following the established governance process and approval of the Department of Political Affairs Learning and Evaluation Board, while taking into account differences in the purpose and types of evaluations undertaken, and the economies of scale that we intend to achieve given the very limited resources available to the Department.

The Department's 2017 evaluation plan will cover the priority areas outlined in annex A. Its focus is on evaluations and evaluative exercises (in-depth studies of lessons learned), more specifically on a midpoint review of the Department's Strategic Plan and Results Framework, evaluation of the impact of the governorate liaison officers project in Iraq and an evaluation of the preventive diplomacy efforts undertaken by the Department of Political Affairs in West and Central Africa.

Evaluation projects focusing on mandated activities reflected in the 2016-2017 strategic framework will utilize the resources allocated through the 2016-2017 regular budget. Broader evaluation involving United Nations partners will be funded from extrabudgetary contributions.

Within the regular budget, the Department's monitoring and evaluation funds in 2016-2017 are estimated at $278,300. The 2018-2019 budget proposal includes $212,300 for evaluation activities, despite a significant budget reduction faced by the Department, of over $1.1 million. Extrabudgetary resources for monitoring and evaluation funds in 2016-2017 are estimated at $33,300. For the 2018-2019 biennium, the resources proposed for evaluation amount to $99,500.

Assuming the sustainability of extrabudgetary resources and continuing donor support at current levels, we are committed to allocating sustainable resources for future evaluation activities to supplement our limited regular budget funding. In addition, as donor funding becomes available, additional resources will be allocated for self-evaluation and evaluation projects in 2017. Please see annex B for the details of the 2018-2019 budget proposal.

Going forward, the Department of Political Affairs is committed to working with OIOS to ensure that it institutionalizes effective, fit-for-purpose evaluation as part of its core functions to support mandate delivery.

In conclusion, I would like to bring to your attention that the Peacebuilding Support Office evaluations were incorrectly linked to the Department of Political Affairs based on the biennial programme plan and priorities, programme 2 (Political affairs), subprogramme 1 (Prevention, management and resolution of conflicts), where the Peacebuilding Support Office is also mentioned. You might wish to revisit observations and context in paragraphs 41 and 42 of the report.*

* This comment was addressed by OIOS in the final report.